ENGINEERING NEWS-RECORD

APRIL 11, 1957

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CONTENTS ON PAGE 17

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APR 11 1957

- Pittsburgh's $100 million job takes shape p. 46
- Plastic design for a 2 story building p. 59

Utah Construction—They found a formula for success p. 34

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Of the 88 Armco Steel Buildings at the new Allen Steam Plant of the Duke Power Company, nearly half of them are at their third site. An equal number are at their second location.

These Armco Steel Buildings are at Their **Third Power Plant Construction Site**

Erected three times at different sites . . . and ready to go again!

That's the record of 37 Armco Steel Buildings used by the Duke Power Company to house workers and machines during construction projects at their various power plants in the Carolinas.

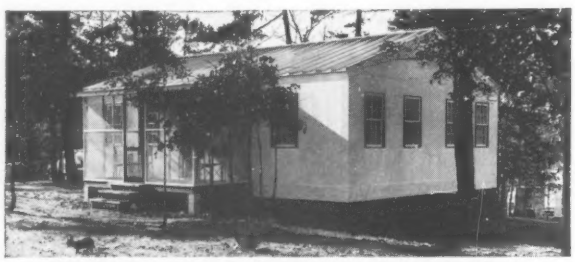
Formerly, wooden buildings were erected at construction sites and later abandoned because relocation was too costly. Then, in 1950, the Duke Power Company erected 37 Armco Buildings—bunkhouses, family-type houses, foremen's offices and tool rooms—during expansion of their Buck Steam Plant. Upon completion of work here, the buildings were dismantled and re-erected for construction crews at the Dan River Plant site.

Recently, ground was broken for the new Allen Steam Plant. The Armco Buildings, already used at two previous construction sites, were again dismantled and re-erected—*their third location.*

* * *

Armco Steel Buildings are available in more than 5,000 sizes, in clear-span widths from 5′-4″ to 100′. Offering high quality at lower cost, they are widely used by contractors, engineers, industries, municipalities and highway departments. Armco Drainage & Metal Products, Inc., 4477 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

These 16- by 60-foot Armco Buildings in the foreground have been dismantled, moved and re-erected twice. First time they were moved 90 miles; the second time it was 140 miles.



One of the many Armco Steel Buildings used by the Duke Power Company as a family-type house. The 24- by 32-foot structure is at its third location.

For more information and prices on Armco Steel Buildings, Call Western Union and ask for Operator 25

Armco Construction Products

ARMCO®

Allis-Chalmers low-cost Model D

BIG in power, strength, versatility

The Model D grader has the power to tackle hundreds of grading jobs profitably. With either 50-hp gasoline or 50-hp diesel engine, it offers plenty of torque and lugging ability.

Big-grader design means long life for the Model D, too. Strong, single-member tubular main frame . . . husky drawbar and one-piece circle . . . ROLL-AWAY moldboard . . . ground-gripping tandem drive . . . they're all plus performance advantages.

Job-multiplying attachments make a big difference in extending the Model D's versatility . . . include a midship-mounted hydraulic scarifier and rear-mounted 5/8-yd loader. Other optional equipment includes power circle turn, shiftable moldboard, leaning front wheels and an all-weather cab.

To keep the profitability in your grading operations, see the Model D now. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

ROLL-AWAY is an Allis-Chalmers trademark.

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Eliminate Notching — Ledger Strips — Strap Hangers — Shimming — Floor and Ceiling Joists are Leveled. one size fits joints from 2" x 4" to 2" x 12"

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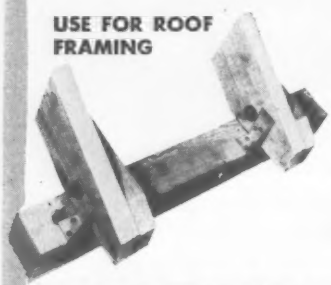

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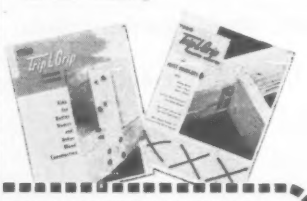

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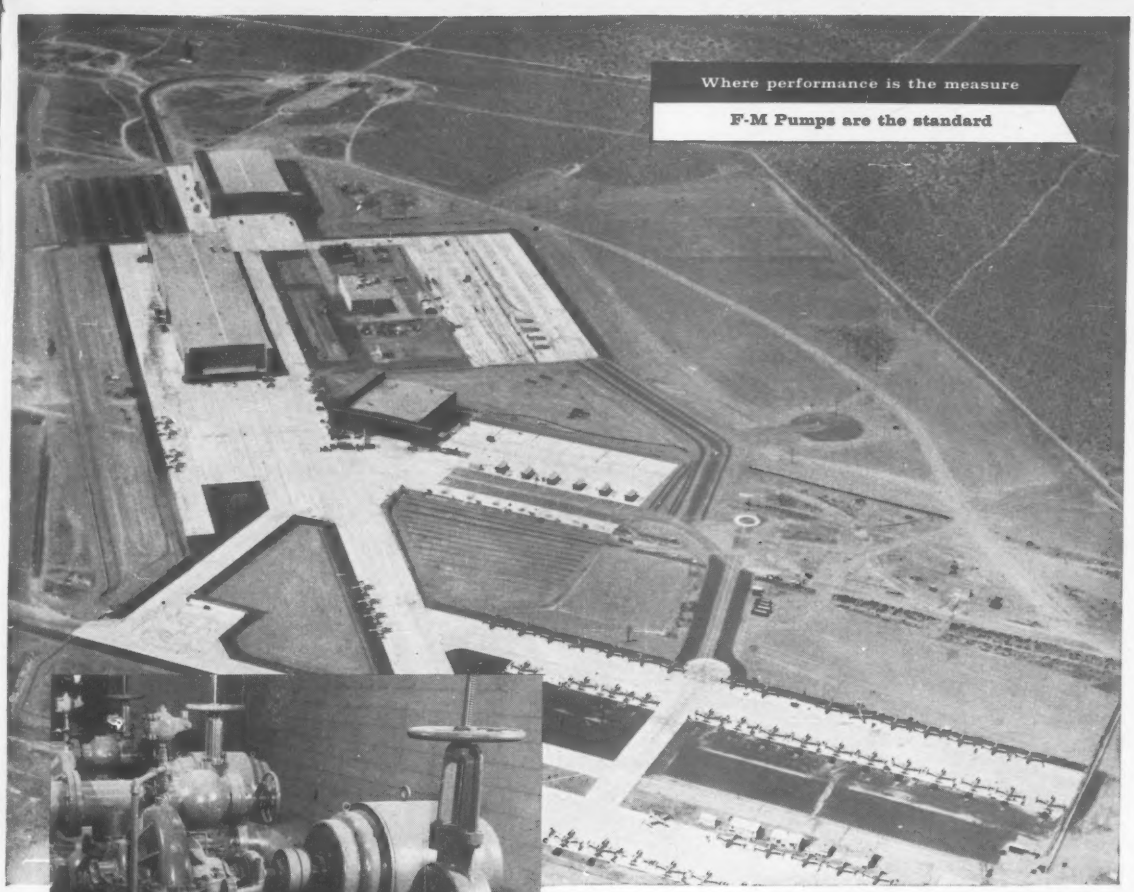

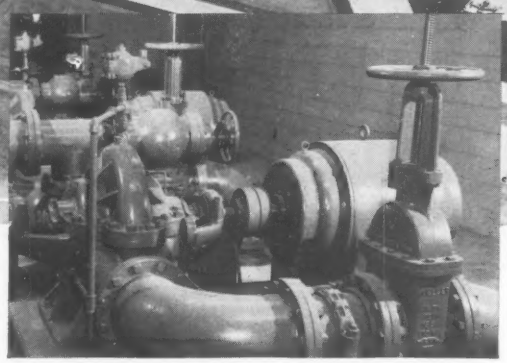

Fairbanks-Morse fire pumps provide 12,000 gpm. of water at 100 psi. for each of two systems.

World's largest jet aircraft center protected by F-M fire pumps

Four major aircraft companies—Lockheed, North American, Convair and Northrop—use the 5000-acre U. S. Air Force Plant No. 52 at Palmdale, Calif., for assembly and testing.

Maximum protection against fire at this gigantic operation was achieved at minimum cost by installing two identical, interlocking water supply systems, each equipped with Fairbanks-Morse pumps for both water supply and sprinkler pressure.

The size and scope of this installation indicate Fairbanks-Morse's ability to supply fire pumps for all magnitudes of industrial and municipal requirements. Whatever your needs in fire protection—big installations or small—your Fairbanks-Morse Field Engineer will be glad to work with your own engineers, in specifying the most efficient equipment. Call him today, or write Fairbanks, Morse & Co., Dept. ENR-4, 600 So. Michigan Ave., Chicago 5, Ill.

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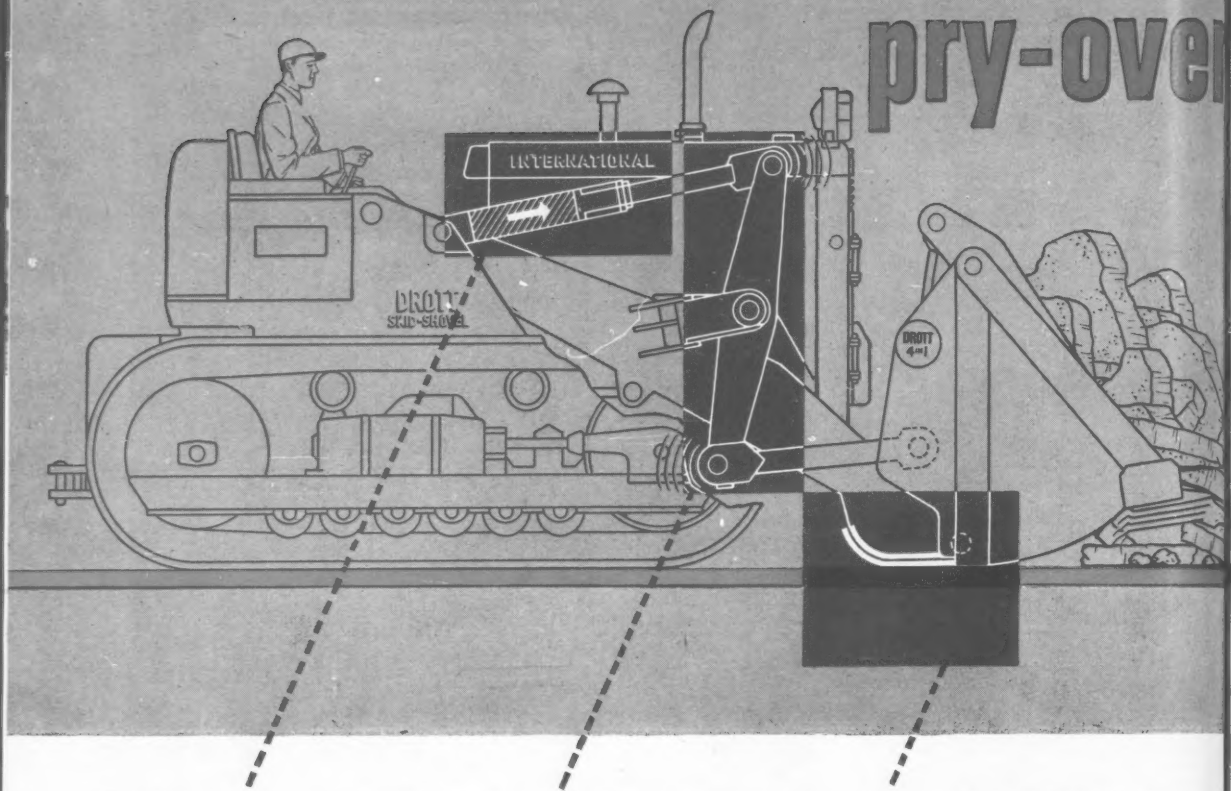

Full hydraulic power transfer! Famous International Drott *triple-power* hydraulic force results from ingeniously applying oil pressure upon the piston's *full face*—instead of using the customary, and limited, rod-end area for the "power-push" surface! Only International Drott gives you this tremendous hydraulic power to produce concrete-smashing, tree-grubbing, boulder-bucking pry-action break-out!

Far greater leverage. See how International Drott scientifically-correct *lever length* transfers *full* triple-power hydraulic force to the fulcrum. No costly power-dissipating "step-downs" here to lose one-fourth to one-half your hydraulic power, as ordinary design does! Instead, International Drott full power-applying leverage gives you tough-job-handling digging force and capacity ordinary loaders can't even begin to equal!

Ground-based fixed fulcrum! Here's how exclusive International Drott design provides the famous frame-mounted skid-shoes—to act as the absolutely necessary *fixed fulcrum.* Without this, true pry-action break-out is impossible. The big *exclusive* International Drott skid-shoes provide the steady, ground-based platform for true ground-level bucket-heaping roll-back of 41°!

Prove to yourself you command a vast new job-range and capacity—with this super-powerful excavating, bucket-heaping pry-action. See what happens when you team this performance with the *versatility unlimited* of an exclusive Four-In-One. Compare how *exclusive* shock-swallowing Hydro-Spring "gentles" trouble-causing impact by 67%! Ask your International Drott distributor for a demonstration!

International Harvester Company, Chicago 1, Illinois
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A CLOSE LOOK AT TRUE

shoe break-out action

Only original and exclusive International Drott design transfers full hydraulic power to give you tremendous extra excavating force!

Genuine pry-action break-out has three absolute essentials: (1) *full hydraulic power transfer;* (2) *long lever,* to apply pry-power without power loss; (3) *fixed fulcrum,* located to concentrate break-out force for maximum effect.

Here's how exclusive International Drott "separates the men from the boys" in heavy-duty loader design—and gives you front-end loader performance and capacity nowhere else available.

Kuschler Construction Co., New Orleans, Louisiana, specializes in demolishing old service stations to be replaced with super-service stations.

Kuschler tore down this old station in one day, then removed the concrete work the second day—doing the entire job with their International Drott TD-9 Four-In-One!

Previously, the contractor demolished the buildings and concrete with compressed air hammers and a three-man crew. Their other make of front-end loader, without true pry-action break-out, was limited to loading debris.

Now, one man, using triple-power International Drott pry-action break-out, accomplishes as much in one day as the three-man crew and four separate items of equipment were able to do in a whole week!

On any-size dirt job, anywhere... power-up profitably with In

In the 200-acre Knollton Heights Subdivision, Hughy Construction Company, Indianapolis, stays ahead of the lot-grading with this TD-9 Four-In-One. Here, they're getting inch-close grading accuracy—boiling in dirt with Four-In-One "carry-type scraper" action! Excavating, loading, dozing, or clamshell action is instantly available with a Four-In-One!

"Our bread-and-butter machines are International Crawlers," says Perry Alexander, Jr., for Perry Alexander Construction Co., Asheville, N. C. "I just traded in a TD-18A, with 13,000 hours on its meter; used no oil between changes—and beat a competitive crawler in overall maintenance and track life." Picture shows their new TD-14 finish-grading around Asheville's new $600,000 Doctor's Building.

"One of our TD-24's—a 1951 model—ran 7,500 hours before major overhaul on rails and engine," states P. H. Morris, for Morris Enterprises, Owensboro, Ky. "It's still in use with original rollers and sprockets. That sold me on TD-24's for my operation." This Morris-owned TD-24 moves 50% of the 45-foot earth-shale-soapstone overburden, ahead of the 3½-yard dragline.

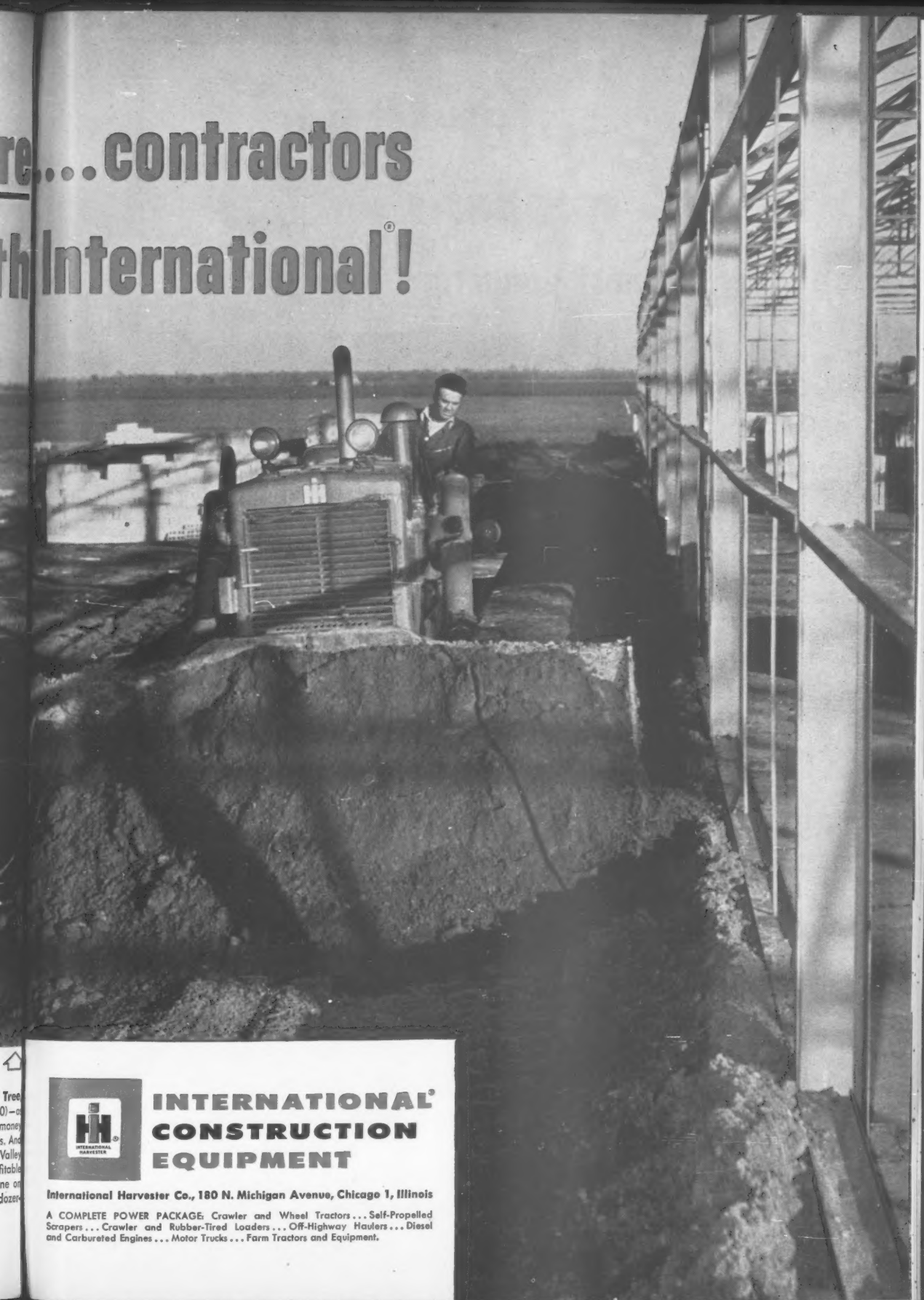
See how the bonus-powered International TD-18, for example, helps speed construction of "decentralized" new factories. You get cleared-for-action deck, control-tower visibility and booster steering to cut lever-pull effort. You also get operating ease of engine clutch with long-lasting Cerametallic facings. Such exclusive *feature combinations* help operators increase daily production, substantially!

For your king-sized jobs, check these *giant-sized* advantages of the *giant-powered* TD-24. See how exclusive, time-proved Planet Power steering gives you full-time "live" power and traction on both tracks for positive, full-load steering, upgrade or down! Plus cycle-speeding on-the-go shifting—*and* instant, stall-preventing Hi-Lo shifting, without declutching!

For dirt-moving versatility, International Drott® Four-In-One Skid-Shovels® give you huge performance and production advantages over anything else in the loader-excavator field! You get instant, fingertip availability of *four* big-capacity machine actions: famous Skid-Shovel dig-ability; scraper-like grade-or-spread ability; earth-rolling bulldozer; and load-gulping, high-dumping clamshell!

Along with the superhighways are other millions of cubic yards of "big-pay dirt" to be moved in plant, school, public building, shopping center, and housing developments. *Prove to yourself* the reasons why more and more contractors are using International crawlers as their *power packages*. See your International construction equipment distributor for a demonstration.

Industry comes to Marked Tree, Arkansas—(population 3,000)—as a modern shirt factory rises on money locally-subscribed to create jobs. And local contractor, St. Francis Valley Construction Co., gets a profitable 8,000-yd fill-spreading job done on time with their hydraulic 'dozer-equipped TD-18!



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A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors . . . Self-Propelled Scrapers . . . Crawler and Rubber-Tired Loaders . . . Off-Highway Haulers . . . Diesel and Carbureted Engines . . . Motor Trucks . . . Farm Tractors and Equipment.

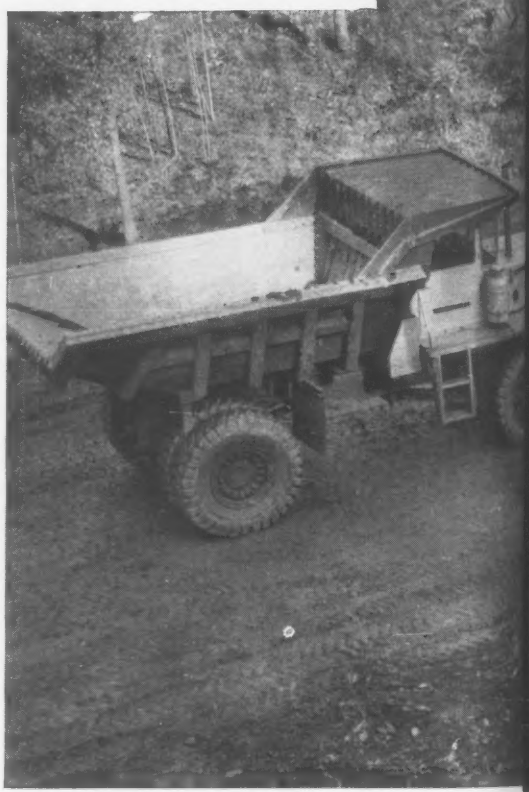
3 Payhauler® Units *match 4 competitive rigs* on "W.Va.'s most dangerous road job!"

Earn 25% equipment saving ...33% production gain for Acme Construction Company, Bluefield, West Virginia

In the mountain-rugged, rough and rocky country of southern West Virginia, three International "65" Payhauler trucks are doing the work of four similar competitive units...on the same job...under the same tough conditions. The location is Welch, where Acme Construction Company of Bluefield, is moving 100,000 cubic yards of rocky material "clover-leafing" U. S. Bypass Route 52...labeled by Jim Chase, superintendent, as "West Virginia's most dangerous road job."

All haul units on the job are in the same capacity and power class. They're all loaded by a 1½ cu yd shovel...they all travel the same ½-mile to the fill and the same return route. Yet, the Payhauler trucks because of their ample, turbo-charged diesel power, plus load-matched gear ratios, smooth the get-away —and permit quick shifting into time-gaining, hill-climbing higher gear! This performance under rough and rugged conditions has caused Jim Chase to say, "We get the same production from 3 International '65' Payhaulers as we do with our four other units...a 25% savings in equipment, a 33% gain in production."

Prove to yourself how much an International "65" or "95" Payhauler will boost your off-highway hauling capacity. Try its safe and easy full-load maneuverability. Test the power-transfer efficiency of its long-lasting Cerametallic-faced clutch. Ask your International Construction Equipment distributor for a demonstration!



International TD-24 dozes shot-rock down the slope to 1½ cu yd shovel and easy-loading International "65" Payhauler. 250,000 pounds of dynamite were used...about a pound to every 3 yds of rock!

INTERNATIONAL® CONSTRUCTION EQUIPMENT

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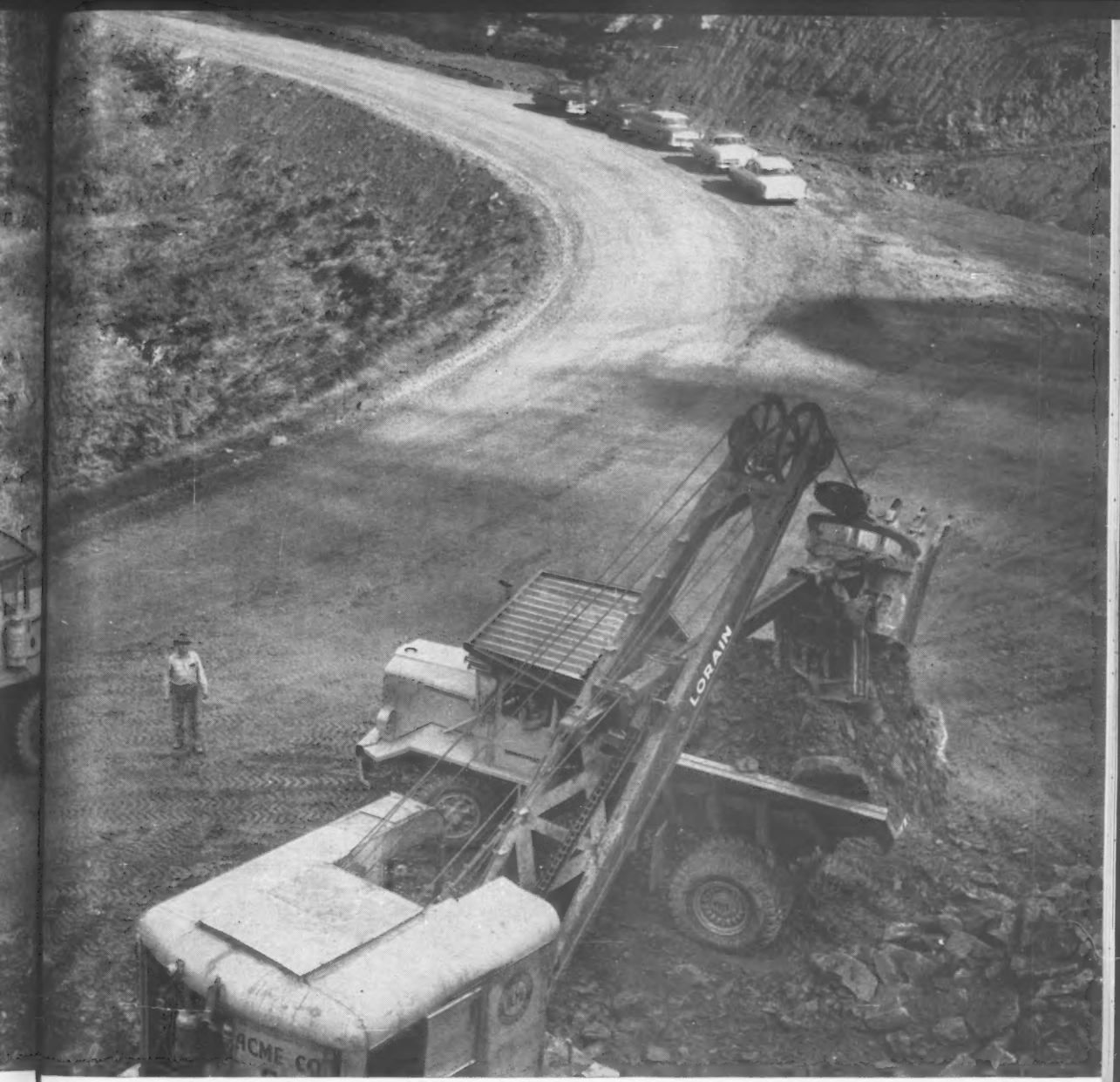
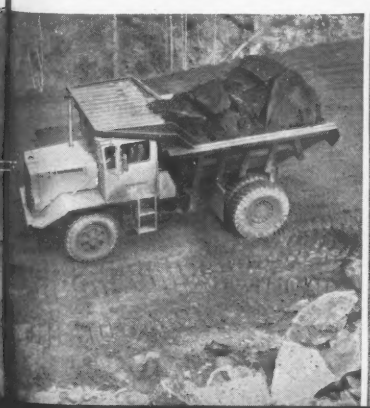
A COMPLETE POWER PACKAGE INCLUDING: Crawler, Wheel, and Side-Boom Tractors ... Self-Propelled Scrapers and Bottom-Dumps ... Crawler and Rubber-Tired Loaders ... Off-Highway Trucks ... Diesel and Carbureted Engines ... Motor Trucks

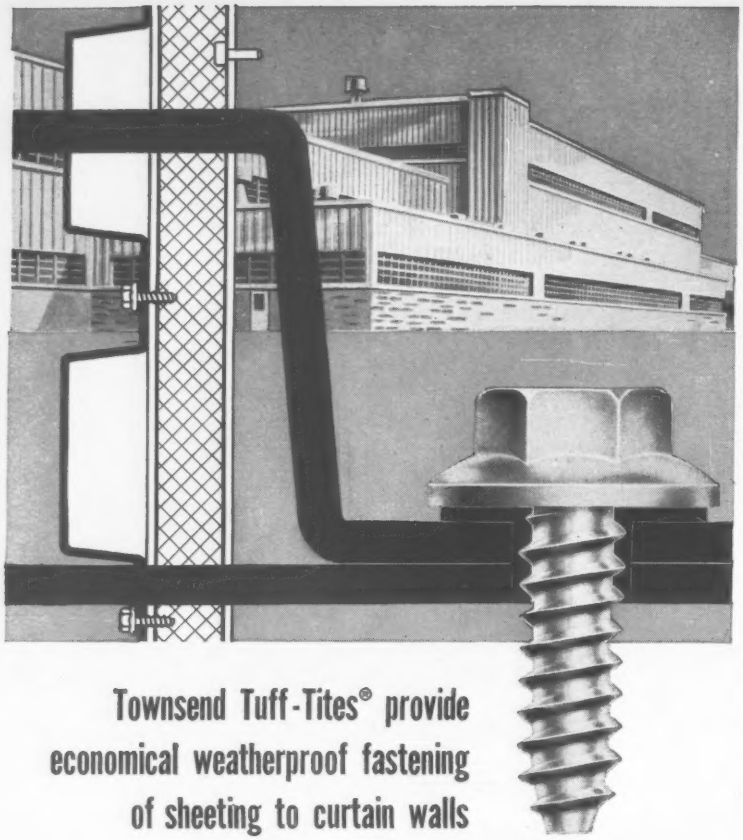


Ample power from a 250 hp Turbo-charged engine drives the model "65" at production-boosting speeds...with fuel consumption savings of 10% or more. Ten-speed transmission gives right gear for every grade...every road condition.

Double acting hoist cylinder in all stages with *106,300 pounds of force in first stage* permits dumping heaped loads in less than 10 seconds. Hydraulic snubbing action prevents undue stress on hoist cylinders and "gentles" body return to frame.

Strongest frame in its class and big 10 x 14 foot high tensile steel Payhauler body permit faster, more carefree loading of rock or other tough materials. Model "65" Payhauler body gives you big, profit-boosting, 18-ton capacity, model "95" a husky 24 tons.





Townsend Tuff-Tites® provide economical weatherproof fastening of sheeting to curtain walls

Townsend Tuff-Tite fasteners provide weatherproof fastening of exterior sheeting to insulated panels used in curtain wall and roof construction. Leakage is eliminated by the Tuff-Tite's integral undercut hex head and washer construction and by the pre-assembled conical shaped neoprene washers which fill the holes.

An outstanding application of Tuff-Tites in curtain wall construction is the "A" panel made by Elwin G. Smith & Co., Emsworth, Pa. These panels are made with a number of different surfaces and have been installed by Elwin G. Smith on buildings in varying climates from New England to Texas.

Tuff-Tites are available in both stainless and carbon steels in a number of types and lengths. They are equally suitable for crown or valley fastening because of their excellent sealing qualities and may be used with aluminum, galvanized steel, stainless steel, protected metals, fiberglass plastic or asbestos siding and roofing.

For more information on these economical, weatherproof fasteners, write to Townsend Company, P.O. Box 237-L, New Brighton, Pa., asking for Bulletin TL-107a.

The Fastening Authority

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Reader Comment

Wrong Railroad

SIR: It isn't often that one detects an error or misstatement in ENGINEERING NEWS-RECORD, but, minor as it may be, I would like to call your attention to one which appears in the first paragraph of your article on Loring and Portsmouth air bases (ENR Feb. 28, p. 42).

The offending paragraph states that "the railroad spur was built . . . to connect with tracks of the Boston & Maine Railroad, at Caribou." The nearest point of the Boston & Maine system to Loring is at Portland, approximately 350 miles distant. The . . . base is served by the Bangor & Aroostook . . . which runs from Bangor to Fort Kent, via Caribou.

HAROLD S. WALKER
Consulting Engineer
Marblehead, Mass.

•

SIR: I am curious. In your article of Feb. 28 describing strategic bomber bases, you mention the construction of a 25 mile rail connection from Loring . . . to the Boston & Maine Railroad at Caribou.

My map shows a . . . branch of the Bangor & Aroostook from Caribou, and no part of the Boston & Maine in the area.

P. BARRY
Director of Safety
Rochester Gas & Electric Corp.
Rochester, N. Y.

EDITOR'S NOTE—Both reader Walker and Reader Barry are correct—the connection is from the Bangor & Aroostook.

Changing Exchange Rate

SIR—Having seen your article, "Thailand's Greater Chao Phya Project Nears End" (ENR Dec. 27, 1956, p. 49), we regret to inform you that there are some errors in figures as regards the cost of the work.

The reason why the errors crept in is that the cost was originally worked out on the basis of a rate of exchange of U.S. $1 = Baht 12.50, whereas on the basis of the present rate of exchange it

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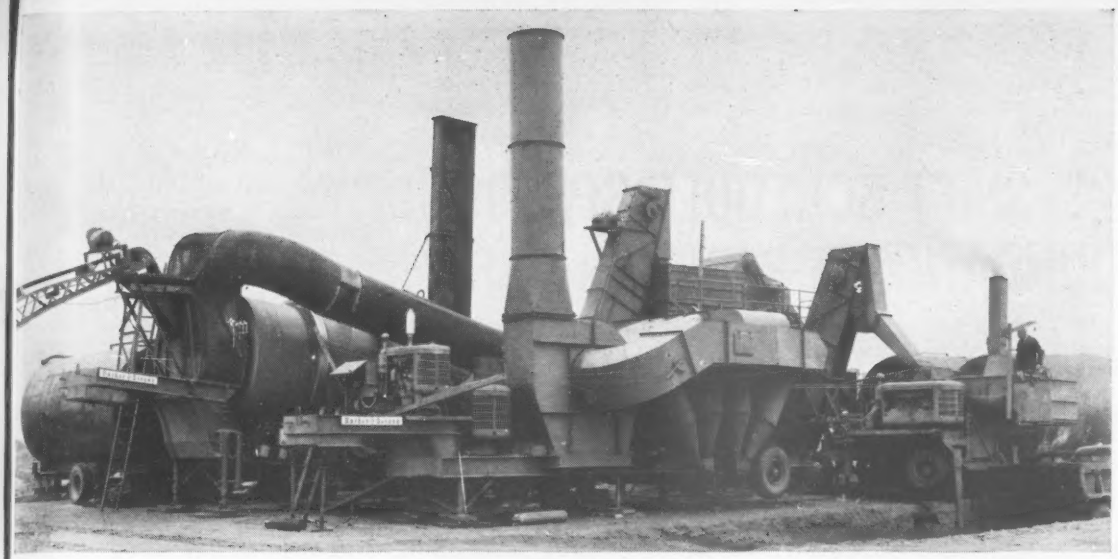
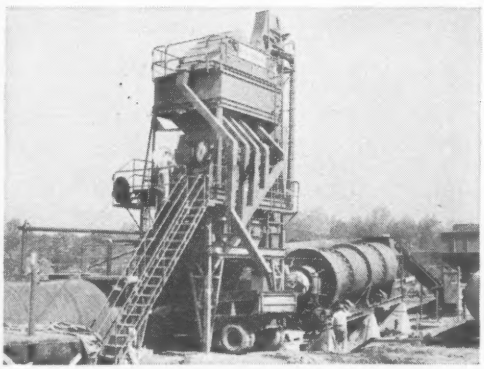


How to lower the cost of asphalt paving

with Barber-Greene Continuous Plants . . . available in capacities from 20 to more than 200 tons per hour. Built for maximum portability, these plants produce all types of mixes at highest capacity, and for lowest operating cost. Once the proportions are set, operation is automatic; the human element is eliminated and manpower requirements are reduced to a minimum.



with Barber-Greene BatchOmatics . . . available in 2000, 4000 and 6000 pound sizes. Operating on inherently automatic principles, these plants save seconds at every point in the cycle. Instant changeover from automatic operation to manual production of mixes for the drive-in trade . . . instantly reset to preset repetitive cycle operation. New Dyna-Mix pugmill gives faster coating.

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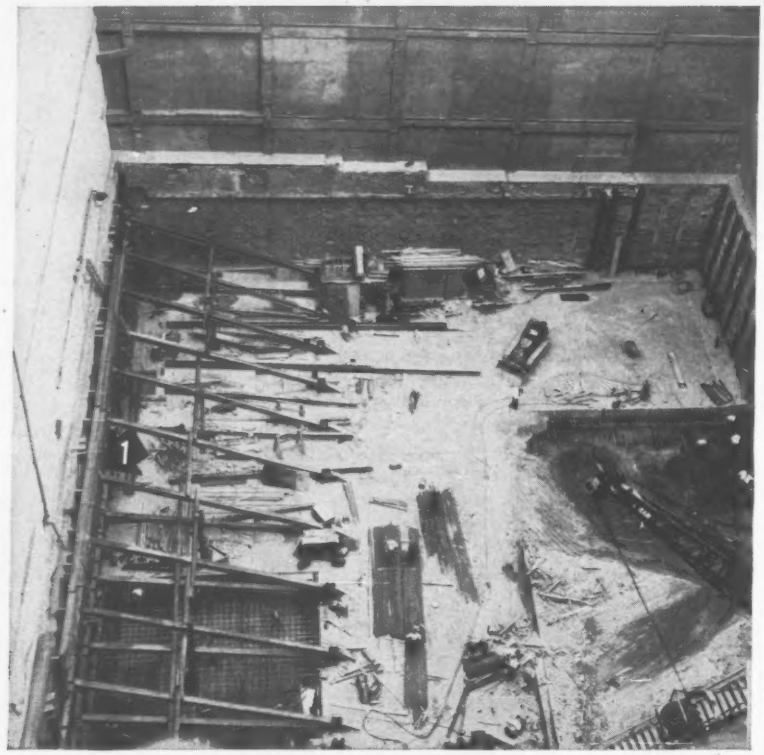

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Engineer: Maurice A. Reidy, Boston.

This job is being done in separate sections, so that Jordan Marsh can continue business during construction. Shown here is the foundation for Section III, handled (as were the others) by Spencer, White & Prentis. Since completion was desired in time for the store's holiday-selling season, our men and machines worked round-the-clock for 3 months to excavate and pour mat on schedule. Photo shows the methods used to prevent movement of adjacent buildings and streets.

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should be U. S. $1 = Baht 20. Therefore, the cost of the whole project is Baht 1,160 million or U.S. $58 million, instead of $80 million. The cost of the dam alone is Baht 150 million or U.S. $7.5 million, instead of $15 million.

UDOM SAENGRUCHI
For Director General,
Royal Irrigation Department
Bangkok, Thailand

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SIR—I cannot think of anything that would please me more than to know that my son would have the opportunity to study under men like George Kimber.

Mr. Kimber's suggestion that retiring engineers consider the possibility of entering the teaching field (ENR Mar. 14, p. 6) is one that could have far reaching effects on the whole pattern of education here in America.

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JACK R. MCKINNEY, *President*
McKinney Drilling Co.
Nacogdoches, Tex.

CALENDAR

Building Research Institute, sixth annual meeting, Drake Hotel, Chicago, Ill., April 15-17.

Western Concrete Pipe Association, annual meeting, Hacienda Motel, Fresno, Calif., April 18-19.

Sanitary Engineering Conference on Solids Handling and Anaerobic Digestion, Manhattan College, New York City, Apr. 24-26.

International Commission on Irrigation and Drainage, 3rd Congress, Sheraton-Palace Hotel, San Francisco, Calif., April 29-May 4.

Building Officials Conference of America, Inc., 42nd Annual Convention, The Jung Hotel, New Orleans, La., May 6-9.

American Water Works Association annual conference, Atlantic City, N. J., May 12-17.

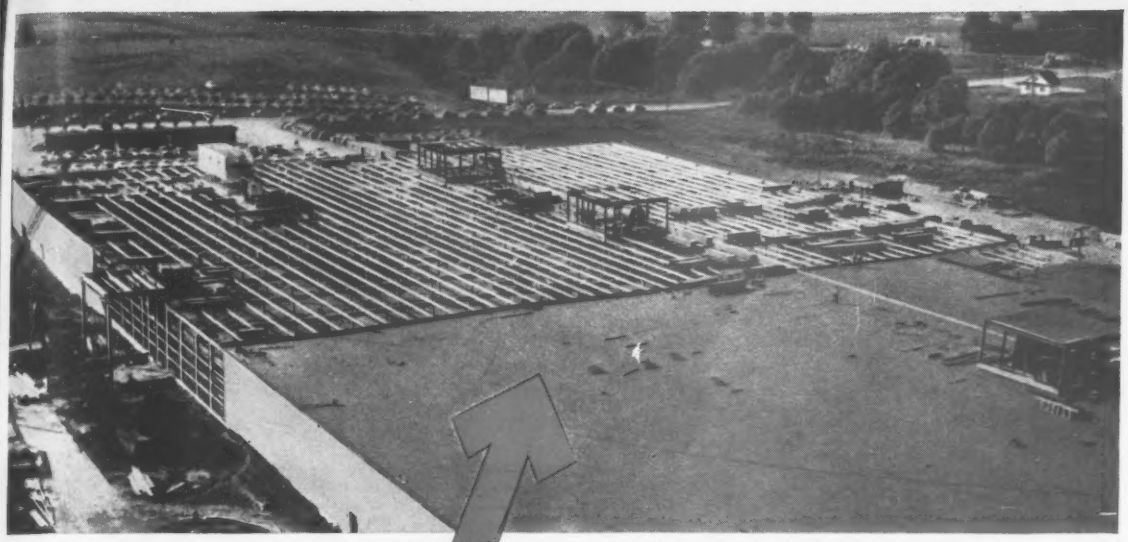
12th Purdue Industrial Waste Conference, Purdue Memorial Union Bldg., Lafayette, Ind., May 13-15.

Air Pollution Control Association, golden jubilee meeting, St. Louis, Mo., June 2-6.

Annual Meeting of American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J., June 16-21.

Concrete Reinforcing Steel Institute, annual meeting, The Greenbrier, White Sulphur Springs, W. Va., June 24-29.

World Conference on Prestressed Concrete, Fairmont Hotel, San Francisco, Calif., July 29-August. 2.



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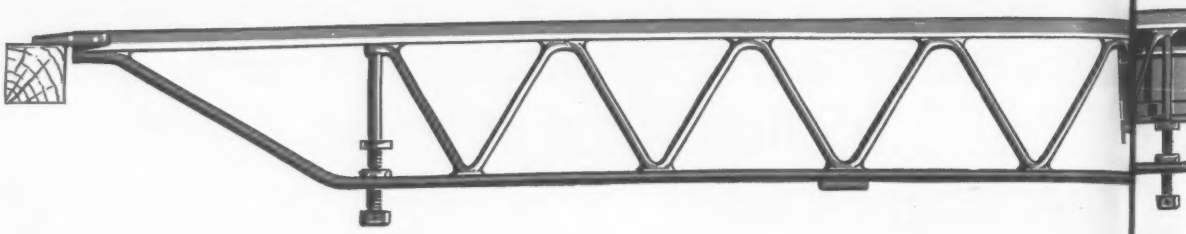

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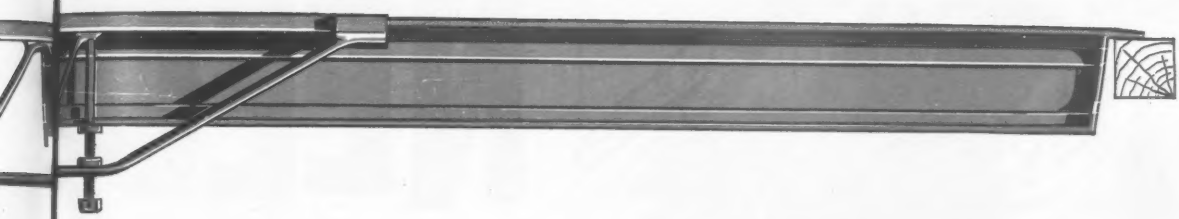

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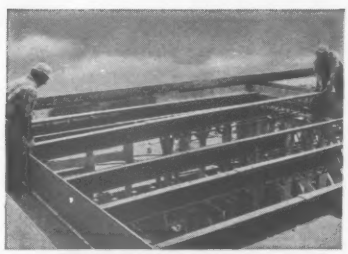

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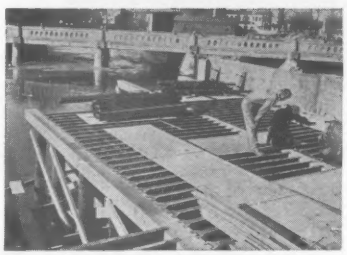

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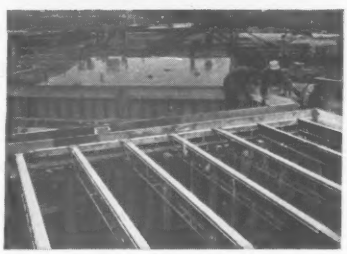

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CONTENTS

NATIONAL AFFAIRS
- Stretch-out for the 41,000 Miles 21
- Tolls and the Interstate System 23
- Pollution Control Agency Cracks Down 23
- Sewerage Grants Program Passes Hurdle 24
- Biggest Missouri Basin Bridge Approved 24
- Departure in Air Terminal Design 25
- State Road Plans Get a Hard Push 26
- $53 Million Set for Airport Work 26
- Proposed Canal Would Flow Uphill 27
- Design Dispute Delays New Capitol 27
- Business Leaders Support Foreign Aid 30

FEATURES
- Utah Construction Co.: A Success Story 34
- Pittsburgh's Sewerage Project Shapes Up 46
- Hyperbolic Paraboloid Roof Is Cheaper 51
- Novel Framing for a Courthouse 52
- Plastic Design Is Used Successfully 59

NEW PRODUCTS
- Demountable Machine Vacuums Streets 71
- Machine Extrudes, Compacts Curbs 71
- Jibs Increase Uses of Crane Line 72
- Ejection Trailer Joins Athey Line 72
- Publications 74

INTERNATIONAL
- Brazil's Road Network Gets New Link 78
- Brazil Pushes Three Big Hydro Schemes 80
- Three-Nation Plan for Mont Blanc Tunnel 81

FIELD AND OFFICE
- How to Cut Drinking Fountain Costs 87
- Wind Tunnel Forms Move on Rolling Rig 87

RESEARCH
- Machine Samples Water Every Hour 90
- Army Develops Crevasse Detector 90
- Does More Insulation Cut Costs? 92

MEN AND JOBS
- West Coast Water Official Retires 97
- Spanish Engineer Lectures in U. S. 97
- Boston Society Elects President 97

BUSINESS AND FINANCE
- Connecticut Sells Turnpike Bonds 141
- Los Angeles County Plans Public Works 141
- Pressure Increases for Private Work Upturn 141
- Construction Markets: Denver 142
- Euclid Begins Major Expansion 145
- Bond Plans Lose in Detroit 155

LABOR
- Teamsters Hedge on Beck Position 148
- Collective Bargaining Moves Forward 150
- Association Lockout Sustained by Court 150
- Self-Discipline Urged for Labor 151
- Carpenters Can Sue McGraw Co 151

Reader Comment ... 10 | Legal 105
Calendar ..... 12 | Unit Prices 110
Washington Observer 19 | Materials Prices 112
Obituaries ..... 102 | Scoreboard 138
Editorials 168

Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Price 35¢ each copy except Annual Cost Issue. Semi-annual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

MONEY STRETCHER—Massachusetts' Department of Public Works hopes to stretch its available funds from two to ten times their present coverage, by virtue of a bill now before the legislature. Under present law, before work can be started the department must have on hand all the money (or bond authorization) required to complete the state's share of any highway project. What's more, none of the money for such purposes can be used for anything else. Result: Most of the $162 million now in the highway fund already is tied up, and will remain tied up until the specific projects planned have been completed. Commissioner Carl A. Sheridan—with the approval of the governor and the state comptroller—has urged an amendment permitting his department to go ahead on a year-to-year basis, with funds set aside for work actually in hand. That would leave millions to be spread on more road projects.

CHANNEL TUNNEL?—Napoleon's dream of a tunnel under the English Channel (his would have had an island in the middle where horses could come up for a breath of air), may be a possibility after all. A new company—Technical Studies, Inc.—has been founded in New York by a French and an American citizen, and is seeking British and French cooperation for economic studies. Planned is a vehicular tube connecting the two nations. Both governments have expressed renewed interest—the British, particularly, after having discounted its fear of military risk, which has blocked plans for many years.

A-POWER VS. HYDRO—Atomic power won't be competitive with the hydroelectric power to be developed at Niagara Falls for at least 30 years. That's the conclusion of Thomas F. Farrell in a preliminary report he has submitted to the Power Authority of the State of New York, as ammunition in its fight for the right to develop the power. Consultant Farrell, former assistant general manager of the Atomic Energy Commission, says power from the atom is expected to get down in cost to 4.9 to 5.9 mills per kilowatt-hour by 1980, whereas the Niagara's power is to be developed at a cost estimated not to exceed 4 mills per kwh. Preliminary estimates of the cost of developing 2 million kw at the Falls have been set at $566 million.

THE DISAPPEARING HIGHWAY DEPARTMENT—Resignation of two more engineers from the Arizona Highway Department brings to 74 the number of men who have quit the engineering division since July 1955. State Highway Engineer William E. Willey reported this figure in calling to the attention of Arizona officials the state's difficulty in retaining competent men in competition with private industry.

GUIDED MISSILE Dead Center!

Because an ample supply of water is vital to the government guided missile base at Cocoa, Florida, authorities installed 160,000 feet of 36″ and 64,000 feet of 24″ LOCK JOINT PRESTRESSED CONCRETE CYLINDER PIPE. Every joint of each 16′ section in this line fits dead center because the volumetrically measured rubber gasket exactly fills the annular recess in Lock Joint's self centering flexible Rubber and Steel Joint.

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WASHINGTON OBSERVER

- **Budget cuts may be temporary**
- **Statistics money will be voted**
- **Seaway costs "shock" Congress**
- **Wage setters boosting road costs**
- **TVA losing fight for funds control**

● **Budget-cutting congressmen hit Commerce construction programs hard** in their voting last week. But the odds still favor restitution of some if not all the cuts before the Commerce appropriation bill is sent to President Eisenhower for signing. In many cases, Congress can't or won't kill programs already under way.

For instance, note that the House voted back the $50 million in grants for sewage treatment plants, after the House committee had killed it all (see page 24).

Also federal aid to airports was cut by $5 million by the Appropriations Committee in its urge to strike out at Secretary of Commerce Weeks (see page 26).

But the airport cut won't mean fewer contracts for construction since the basic law passed in 1955 authorized Civil Aeronautics Administration to contract for $63 million a year of federal-aid matching money for four years.

● **Money for construction statistics will be voted,** despite the drastic action of the House committee in killing all funds for the industry divisions that put them out. Last year, the Congressional drive was toward adding more funds so that more and better figures would be available. It's almost certain that Congress will finally vote the $200,000 or so needed to keep them going.

● **Budget cutters are "shocked" at 53% increase in St. Lawrence Seaway cost estimates**—the total is now figured at $133 million, compared to an estimate of $87 million only a year ago. The committee said that Administrator Lewis G. Castle didn't fully explain the increase in attributing it to increased contractors' costs, inclusion of items not in the original estimates, and assumption of costs originally planned to have been paid by the power companies involved.

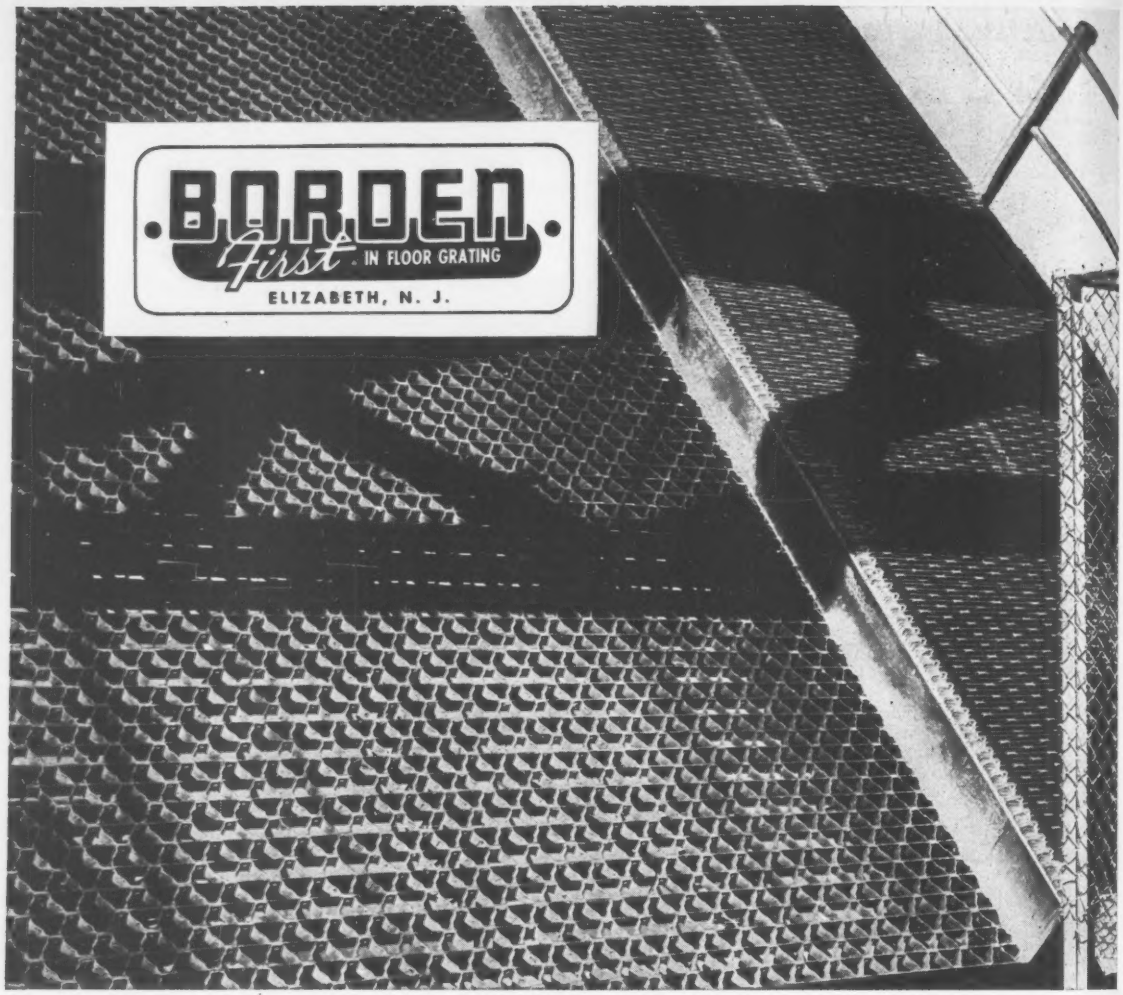
Actually, Congress can't cut anything here either.

● **Federal wage setters are boosting highway labor rates in some states** according to roadbuilding contractors. Labor Department officials are reported to be bringing highway wages up to building trades rates, and giving metalworkers jobs usually handled by unskilled labor, according to information from such states as Arkansas, Texas, and the Carolinas.

● **The Tennessee Valley Authority is losing a Congressional fight for more financial freedom**. What it wants is virtually unlimited authority to finance part of its future growth by issuing its own revenue bonds. The outlook after some apathetic hearings: The legislation likely will fail to get out of the House Public Works Committee.

TVA's construction bill in the coming fiscal year will be about $70 million. That's for work on seven new generating units being added at existing steam plants, and the money is coming out of the authority's power revenues. By 1959, when the last of the seven new units is in service, TVA's capacity will be 11.2 million kw—up from 9.6 million at present.

Starting in 1960, TVA wants to spend about $150 million a year to expand. It would like to spend $75 million a year out of its power revenues, raise the other $75 million by floating TVA bonds.



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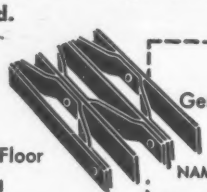

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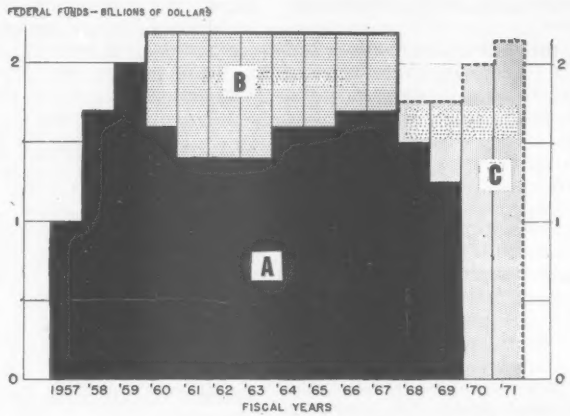


Two Year Stretch-out for the 41,000 Miles

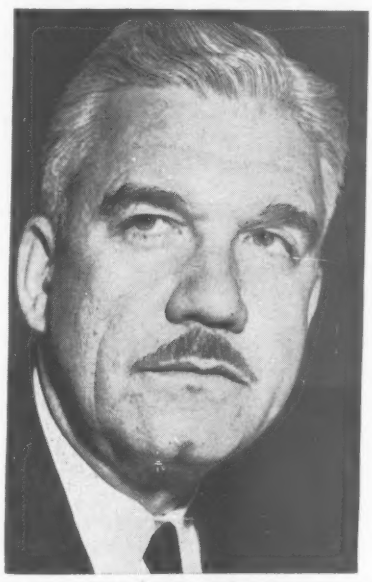
Highway Administrator Bertram D. Tallamy told a Senate highway subcommittee last week that the big multi-billion highway program is "making good progress," but it won't be completed by 1969 as Congress and the Administration had hoped. Instead, Mr. Tallamy said the building time on the new 41,000 mile interstate road system may take an extra two or three years.

It was Mr. Tallamy's first appearance before a Congressional committee since he took over the job of running the mammoth highway program on February 5. He was quizzed on all aspects of the program, ranging from control of billboards to steel shortages and individual state progress.

Mr. Tallamy's one-day appearance before the Senate public works subcommittee on roads marked the end of the "Washington Review" of the program, but committee chairman Albert Gore said further hearings may be held in individual states. However, no schedule has been set.

• **Fund limits speed**—The reason for the delay on the interstate system, Mr. Tallamy told the senators is that the federal grants to states for construction cannot exceed the amount paid into the highway trust fund each year from taxes on gasoline, tires, retread rubber, etc. Although the 1956 Highway Act passed by Congress calls for annual outlays of federal-aid money to states on a schedule designed to have the new highways completed in 13 years, it also stipulates that expenditures are not to exceed tax receipts into the trust fund. This accounts for the time difference. If tax receipts pick up over current estimates, however, construction will be increased proportionately.

The slowdown on the interstate system will begin to show in 1960 when only $1.6 billion will be parceled out to states rather than the $2.2 billion authorized by the 1956 law. Between 1960 and 1967 the total cut in funds will amount to $5.2 billion, then from 1968 to 1971 this same amount will be increased over the normal authorizations to make the total highway expenditures the same as spelled out by Congress.



Bertram D. Tallamy

• **Doesn't slow others**—Construction of primary, secondary and urban roads will not be restricted, Mr. Tallamy told the senators, because money for these roads is the first to be apportioned. What is left goes for interstate highways.

In preparing the roadbuilding schedule for the committee, Mr. Tallamy estimated federal-aid for the primary, secondary and urban highways to be $900 million a year, starting in 1960, based on the intent of Congress when it wrote the highway bill. States match this on a 50-50 basis.

Mr. Tallamy told the legislators that the construction schedule of the new roads will be reviewed at least once a year and adjusted accordingly. Because the tax receipts are based on conservative estimates over a 16 year period, the highway program may keep or even get ahead of the original schedule.

The Bureau of Public Roads has some leeway in insuring that states don't run out of money, Mr. Tallamy told the Senate committee. Generally, there is about a 17 month time lag between obligating money to states and when the actual expenditure is made. So even though the full amount may not be in the trust fund at the time of apportionment, it will be before any payments are due.

• **Who charges whom?**—A point disturbing the senators in view of the slowdown on new road construction because of trust fund limitations as

. . . Two year stretch-out for the 41,000 miles

outlined by Mr. Tallamy is that $300,000 was withdrawn from the fund last year to reimburse the Department of Labor for administering the Davis-Bacon section of the Highway Act. And, Labor has asked for $350,000 this year.

It is the first instance that Mr. Tallamy or the legislators knew of where a government agency has tapped special funds for doing similar work. Sen. Gore and others on the committee admitted that last year's appropriation slipped by unnoticed by them, but they are adamantly opposed to letting it happen the second time. Chances are it won't.

• **Billboard controls**—With Congress about half way through its session for this year, the only legislative action affecting the Highway Act that seems likely at this time is some type of control to prevent billboards from rimming the new highways. However, even on this point there is wide disagreement.

No one questions that the net of super interstate highways should remain scenic and uncluttered by advertising billboards, but how this is to be accomplished has stirred sharp controversy within Congressional committees.

Sen. Richard L. Neuberger is backing a bill that would prohibit billboards on all federal land, and force states to adopt uniform standards for additional control of signs. Costs incurred by states in controlling the billboards would be shared by the federal government on a 90-federal, 10-state matching basis. States have estimated that it would cost $345 million to control advertising 750 feet back from the highways, and $320 million to prevent them from coming within 650 feet of the roads.

The Administration, however, has a more drastic plan. It would cut federal-aid to states by 5% if they didn't prevent billboards along the interstate roads; signs advertising land for sale and those describing the activity of an establishment—that a plant builds roller bearings, for example—would not be prohibited. However, the Administration proposal contains a loophole. It would allow states to zone sections along the highway as commercial areas and billboards could be put up. Theoretically, a state could zone its entire section of interstate roads as a commercial area and have it filled with billboards.

Actually, the Administration proposal has met with such sharp opposition until it has not yet been introduced as a bill, and chances are slim that it will ever find a backer. The legislators don't want to renege on matching money, and don't want to rely on a state's good faith to take advantage of the loopholes.

Right now, control of billboards is left to each state. Some have uniform regulations covering their location, others have very little control on where billboards can be placed. They are barred from federal land. The outdoor advertising industry, as well as commercial establishments that are to serve the new roadways are plugging hard to keep from being shut out from placing signs along the highways. They see it as a dollars and cents factor, and argue that billboards are not necessarily as unsightly and dangerous to motorists as the legislators imagine. Actually, there are no statistics proving that billboards contribute to accidents. But, there are none that show they eliminate accidents, either.

It all boils down to a situation that is sure to end up with some type of control, but before controls are slapped on there is more arguing to be done by each faction.

Other factors on the highway program that the senators questioned Administrator Tallamy about included the current steel shortage.

Mr. Tallamy told the legislators that he was "not really concerned" about the steel shortage. Reason being, he explained, is that states are turning more and more to use of prestressed concrete as a substitute for structural steel. And the steel required for this is not in short supply.

Also, Mr. Tallamy said, when states use more of the prestressed concrete the competition created tends to drive down prices on regular structural steel.

• **Progress report**—Progress that individual states are making in getting the highway program under way concerned the legislators.

After having Mr. Tallamy outline the degree of progress that states are making, Senator Gore made the comment that Mr. Tallamy's "testimony confirms my apprehension over the lack of uniformity in progress being made in the road program."

As of March 31, here is the percentage of the 1957 federal-aid apportionment that states have obligated, as Mr. Tallamy outlined to the Senate committee.

10 states have obligated 100% of the 1957 apportionment.
Maryland, Rhode Island, California, New Mexico, Illinois, Ohio, New York, Missouri, Minnesota, and Oregon.

12 states have obligated 75 to 100%.
Colorado, Tennessee, Texas, Connecticut, Pennsylvania, Michigan, Wyoming, Mississippi, Florida, Iowa, Massachusetts, and Washington, D. C.

9 states have obligated 50 to 75%.
Alabama, Montana, Arizona, Wisconsin, Kansas, Kentucky, South Dakota, Oklahoma, and Washington.

8 states have obligated 25 to 50%.
Arkansas, Georgia, North Dakota, Vermont, North Carolina, Louisiana, Utah, and Delaware.

(Miles of highway under contracts awarded as of Feb. 28, 1957, excluding projects started before July 1, 1956.)

How the Program Is Going

State	Miles of Construction
Alabama	11.5
Arizona	6.2
Arkansas	6.4
California	35.9
Colorado	17.9
Connecticut	5.7
Delaware	0
Florida	.3
Georgia	3.2
Idaho	15.7
Illinois	10.2
Indiana	.6
Iowa	19.4
Kansas	9.2
Kentucky	0
Louisiana	*
Maine	2.8
Maryland	17.7
Massachusetts	2.9
Michigan	21.0
Minnesota	20.8
Mississippi	10.9
Missouri	35.0
Montana	8.8
Nebraska	0
Nevada	0
New Hampshire	1.8
New Jersey	1.5
New Mexico	56.9
New York	24.7
North Carolina	18.2
North Dakota	32.8
Ohio	50.1
Oklahoma	22.6
Oregon	19.0
Pennsylvania	28.7
Rhode Island	.3
South Carolina	14.6
South Dakota	7.3
Tennessee	0
Texas	177.8
Utah	.2
Vermont	0
Virginia	12.3
Washington	24.3
West Virginia	0
Wisconsin	2.3
Wyoming	34.1
Hawaii	0
Dist. of Col.	0
Puerto Rico	0
Total	791.4

* Less than 0.05 mile

9 states have obligated 0 to 25%. New Hampshire, South Carolina, Indiana, Virginia, Nevada, Maine, Nebraska, West Virginia, and Idaho.

1 state has obligated 0%. New Jersey.

Although there are several states that are not progressing with the road program as rapidly as he would like, Mr. Tallamy told the committee that the spread in progress is caused by many factors. For example, he said that some states have done more advance planning on road projects than others and were ready to start work once the Highway Act was passed. In many cases, state laws had to be changed, and several states are sill spending money that had been carried over from previous years. New Jersey, for example, obligated $2 million this year in highway construction that was carried over from past years.

Legislators Veto Plans For Huge Sports Arena

Plans for what would have been the longest building span ever constructed received a serious if not fatal blow in the closing days of the New York State Assembly session just ended. The lawmakers killed proposed legislation that would have permitted the developers of Olympic City, a 1,080 x 1,400 ft arena planned for construction in New York City (ENR Feb. 21, p. 47), to run winter harness races in New York and retain a share of the state's normal take from the parimutuel pool to pay for the project.

Tolls and the Interstate System

Controversial Colorado tunnel puts the spotlight on the problem of toll facilities in the interstate net

A bill signed recently by Colorado's Gov. Stephen McNichols—one authorizing construction of a toll financed vehicular tunnel under the Continental Divide—may well bring to the foreground a controversial aspect of the federal highway program.

The story is this: For years Colorado has been trying to get a tunnel through the divide in order to attract through traffic of both pleasure cars and trucks. At present, the principal routes across the divide are rugged three lane roads over the Bethoud, Loveland, and Rabbit Ears passes. Consequently, many drivers prefer to skirt the state completely, and this diverson of traffic has hurt the state financially.

The tunnel long has been a proposed solution, but a survey made some time ago by two consulting engineering firms put a damper on the plans because of an estimated $42 million pricetag on the project. Former Gov. Ed C. Johnson accused the engineers of planning a "gold plated" tunnel (ENR Mar. 22, 1956, p. 26) and stated that if the job could be completed for his own estimate of $16 million, work would be started immediately.

A $16 million bond issue was authorized and bids were called for on designs to be suggested by the bidders. However, the low figure was just over $18 million so a revision of the bond issue had to be made.

Now the $18 million figure has been authorized and the state is ready to start construction. But here's the problem: The tunnel is going to be strictly a Colorado venture, financed by a bond issue to be retired from toll revenues. To insure toll receipts and to keep down their cash outlay, Colorado and Utah have asked the Bureau of Public Roads to provide more than 450 miles of access roads under the federal program—and this represents just under half the 1,000 miles still to be allocated under the plan.

Beyond the doubtful possibility of the two states getting the mileage lies the question that is of concern to road officials everywhere: What should be the role of toll facilities that actually become an integral part of the interstate system?

Under the 1956 Highway Act, a federal aid highway can have in it a toll bridge or tunnel that is built with state funds. Federal money can be used to build the approach roads up to the closest point to the facility where there is a free bypass around it, and federal responsibility will start again at the closest point beyond where the detoured traffic can get on the route. Thus, if the last detour road around a mile-long toll facility is five miles from it on one side and the closest access road is two miles beyond it on the other side, the state will have to bear alone the cost of the facility and seven miles of road.

However, if the detours around toll installations are too long or too inconvenient, there well may be loud protests from motorists.

Since Colorado is by no means the only state planning to put toll facilities within a section of interstate highway (New York, for instance, intends to incorporate within the system both the Throggs Neck and Narrows Bridges) its action may have far reaching effects.

Pollutor Will Stop

Orsanco shows teeth; forces Gallipolis to act on needed sewage works

The Ohio River Valley Water Sanitation Commission's first serious threat to use court action against a community has apparently caused a capitulation. Orsanco's demands that Gallipolis, Ohio, take positive action on starting a sewage treatment plant are expected to be met.

The eight-state pollution control agency has received a letter from Gallipolis City Manager Austin Cotton which states that the city has instituted a sewer service charge to finance a $900,000 bond issue to be used to build disposal facilities.

For years Gallipolis had defied the Ohio Water Pollution Control Board and Orsanco by refusing to do anything about its discharge of raw sewage into the Ohio River. Late last year Orsanco announced it was prepared to use its legal enforcement power for the first time.

This and a recent court decision upholding the Ohio Water Pollution Control Board's refusal to renew Gallipolis' permit to discharge raw sewage (ENR Mar. 7, p. 26) apparently have forced the city to act.

Underscoring the importance of the battle, Edward J. Cleary, executive director and chief engineer of Orsanco, said:

"This Gallipolis matter is vital to the success of the entire water pollution control program. It will demonstrate to other communities some of which have been dragging their feet, that the program has teeth."

New $6 Million Bridge To Span Delaware River

The Delaware River Joint Toll Bridge Commission has authorized construction of a $6 million structure between Yardley, Pa., and Wilburtha, N. J. The high-level span will replace a structure that was badly damaged in floods in August 1955.

On the Pennsylvania side, the new structure will connect with a four lane freeway near Morrisville that eventually will extend to Philadelphia. In New Jersey, the bridge will be a link to U. S. Route 1—a major north-south artery in the East.

Plans call for a two lane roadway, with provision being made for possible future expansion to four lanes if traffic warrants.

U. S. funds are expected to pay half the cost of the structure, with New Jersey and Pennsylvania sharing the remaining construction costs.

Road Expert Dies

Thomas A. MacDonald was head of BPR for 34 years

Thomas A. MacDonald, 76, who headed the United States Bureau of Public Roads from its inception in 1919 until his retirement in 1953, died April 7 at his home in College Station, Texas, where he had headed the Highway Research Center at Texas A. and M. College.

So synonymous with his long career as a public official was the development of the U.S. highway system that Mr. MacDonald often was hailed as "Mr. Public Roads."

Mr. MacDonald was a native of Leadville, Colo. He graduated as a civil engineer from Iowa State College in 1904, served as an assistant professor at that school for two years, then became Iowa's first state highway engineer. He served in that post for 15 years heading a drive that made Iowa one of the first in the Midwest to establish a state-wide system of main roads.

But when he went to Washington in 1919 to accept the post of chief of the newly created Bureau of Public Roads, he stepped onto a national and international stage that he was to occupy until 1953 with unusual distinction and an impeccable record of honesty.

In 1919, the federal government was developing a plan for administering the federal-aid Road Act of 1916, and Mr. MacDonald was the chief architect in the present-day development of federal participation in highway construction and development.

Re-appointed by succeeding Presidents, Mr. MacDonald guided the growth of the U.S. highway system from 272,000 miles in 1919 to the present more than 3.3 million miles; and served both the U.S. and foreign governments as a consultant and expert on highway problems. He held numerous U.S. and foreign decorations for his work.

Always convinced that U.S. highways were inadequate, he was one of the leaders in advocating a national system of expressways to carry increasing traffic loads safely and efficiently.

Big Missouri River Span Gets Approval From Corps

Army Engineers last week approved the contract award for construction of the longest and highest bridge to be built under the Missouri Basin program. The $4.3 million structure, which will cross the Missouri River at Forest City, S. D., will be 4,583 ft. long and more than 300 ft high.

The $3 million contract was awarded to John F. Beasley Construction Co., Chicago, for the superstructure. Massman Construction Co. of Kansas City, Mo., has been working on the substructure since September under a $1.2 million contract.

The new crossing is needed because water backing up behind Oahe Dam, 40 miles downstream, will drown out the present bridge, which carries U.S. Highway 212.

The bridge will have three cantilever trusses 675 ft in overall length, interspersed with suspended spans each 250 ft long. It will be supported on clusters of steel piling that had to be driven through 150 ft of river muck and glacial deposit to reach a solid bearing in the Pierre shale formation. The piers have a cruciform cross section that achieves strength with a slender structure.

The deck will be paved with lightweight concrete using a bloated clay aggregate. Weighing 90 to 110 lb per cu ft, this mix will reduce dead weight by one-third.

The bridge will be a composite of welded and riveted construction. Members will be built up from standard shapes by welding. Box beams will be made of two 15 in., 50 lb channels connected by a diaphragm plate of 14½ in. by 7/16 in steel and boxed in with cover plates. Chord members will be regularly available flange shapes. Joints will be riveted.

For maintenance, the bridge will have a permanently mounted trolley and platform under the deck.

Construction is being handled under a cost reimbursable arrangement with South Dakota.

Sewerage Grants Get By . . .

The federal water pollution grant program, which allocates to the states $50 million a year for treatment plant construction, has gotten by its biggest hurdle of the year. Last week the House of Representatives, after first cutting out the grant program, restored the funds in the most dramatic afternoon of the current session of Congress.

Republican leaders, who had got House Republicans to go along with abolishing the grant program on Wednesday, could not hold the line on Thursday. And with 186 Democrats supporting the program, the money was restored. Only 35 southern Democrats joined 150 Republicans in trying to kill the program.

Rep. John Blatnik, who authored the grant program as part of the new water pollution control legislation last year, got support from the Public Health Service and local civic organizations across the country to win the fight. The Senate Appropriations Committee and the Senate are expected to go along with the final House action.

Below are the allocations to the states, based on a full appropriation of $50 million.

. . . Allocations Escape Budget Cutters

State or Territory	1957 allocations	Estimated 1958 allocations	State or Territory	1957 allocations	Estimated 1958 allocations
Alabama	$1,150,125	$1,157,175	New Jersey	1,113,600	1,110,125
Arizona	566,725	578,400	New Mexico	631,850	627,850
Arkansas	1,047,925	1,030,100	New York	2,749,675	2,746,550
California	2,053,325	2,052,475	North Carolina	1,270,675	1,272,425
Colorado	624,300	636,675	North Dakota	702,575	676,250
Connecticut	628,275	626,575	Ohio	1,653,325	1,655,100
Delaware	350,350	346,450	Oklahoma	865,825	858,725
Dist. of Columbia	445,650	453,675	Oregon	647,125	651,575
Florida	910,775	907,550	Pennsylvania	2,097,650	2,098,725
Georgia	1,137,700	1,136,150	Rhode Island	520,500	509,600
Idaho	476,475	593,325	South Carolina	995,100	1,007,525
Illinois	1,752,825	1,749,050	South Dakota	660,775	664,050
Indiana	1,027,400	1,029,725	Tennessee	1,136,050	1,130,075
Iowa	873,075	882,450	Texas	1,716,475	1,716,350
Kansas	733,550	749,150	Utah	591,175	588,525
Kentucky	1,067,225	1,075,525	Vermont	575,325	556,650
Louisiana	993,975	993,350	Virginia	1,027,450	1,025,525
Maine	627,125	634,650	Washington	755,850	756,050
Maryland	750,350	750,000	West Virginia	891,525	904,200
Massachusetts	1,137,125	1,126,450	Wisconsin	971,725	974,625
Michigan	1,389,675	1,386,275	Wyoming	440,375	450,750
Minnesota	929,450	923,250	Alaska	426,525	425,100
Mississippi	1,180,375	1,172,550	Hawaii	496,100	504,325
Missouri	1,059,775	1,060,950	Puerto Rico	1,185,550	1,177,725
Montana	503,650	503,325	Virgin Islands	830,000	822,175
Nebraska	661,075	674,150			
Nevada	325,775	330,200	TOTAL	$50,000,000	$50,000,000
New Hampshire	543,150	529,825			

Tornado Comes Close To Dallas Business Area

If a reminder is needed of the importance of designing buildings against high winds, the tornadoes that struck the southern portions of the U.S. in the last two weeks served the purpose. One in particular came very close to the heart of a big city.

That twister slashed through the outskirts of Dallas killing at least eight persons, injuring 400 more and causing property damage of several million dollars. In one 13 block area 197 homes were destroyed.

According to T. Carr Forrest, Dallas consulting engineer, no new lessons on how to prevent failures could be learned, since most of the damage was suffered by flimsily constructed residences. In an industrial district composed mostly of one story buildings, some large warehouses of concrete-block bearing wall construction were felled.

Only one sizable building—of three story brick construction—was hit hard. It suffered about $500,000 damage, principally to the top story. A study of the damage has not yet been completed.

Philadelphia Gets Federal Funds for Urban Renewal

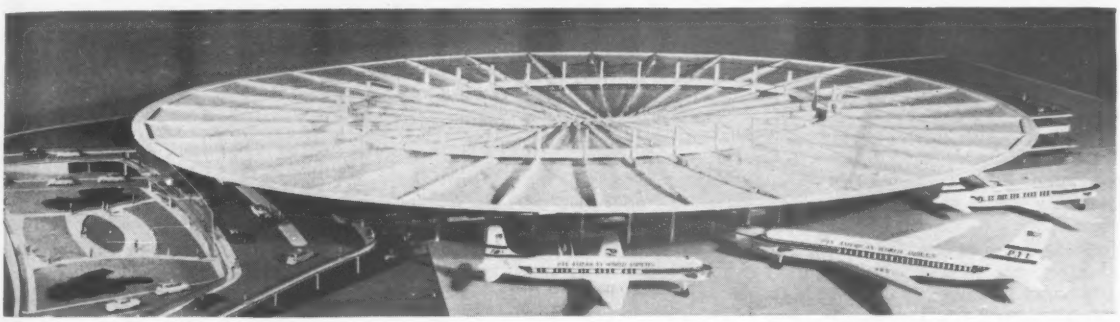
The Federal Urban Renewal Administration has made available $65.3 million for Philadelphia's $100.7 million Eastwick redevelopment project. First land condemnation is scheduled to start in September, according to Francis J. Lammer, Executive Director of the Philadelphia Redevelopment Authority.

The Eastwick project, in southwest Philadelphia, is planned for 626 acres of housing, 58 acres for commercial building, 1,010 acres for industrial use.

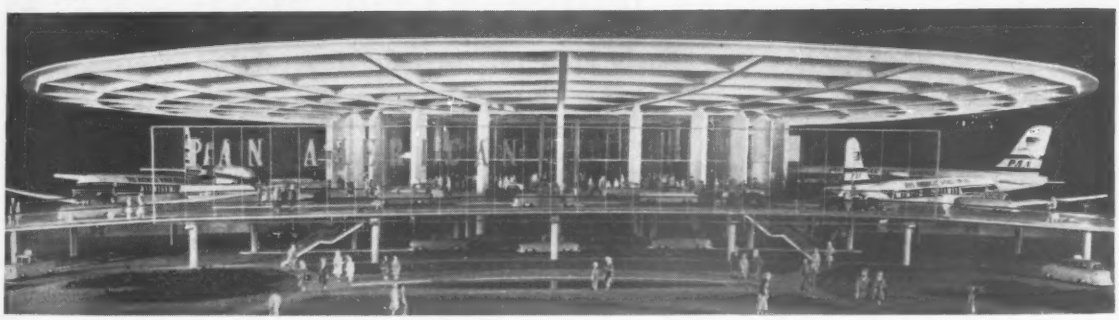
Eastwick will enjoy a financial advantage. The Federal National Mortgage Association (Fannie Mae) is committed to purchase all mortgages involved in the massive redevelopment program.

Land acquisition, demolition, and site improvements are expected to take two years to complete. Actual development, by private developers, is expected to take five years after that.

The project will increase Eastwick values by about $275 million and is expected to pay its way in taxes when completed.



Elliptical Suspended Roof Is a . . .



. . . Departure in Air Terminal Design

Air travelers who don't like hiking may hail the convenience of a new $8 million terminal that Pan American World Airways plans to build at New York International Airport.

Passenger-loading position at the new facility, instead of being strung out in a row, will be grouped around a central core of lounges and service facilities and will, furthermore, be under the main roof.

The building will be an umbrella-like structure, with steel girders radiating from the center in all directions, their extremities tied back by cables to the center. Both the roof and the central core will be elliptical in plan, the shape of the latter being concentric with the outline of the roof.

The core will have a long axis of 310 ft and a short axis of 205 ft. Around its perimeter will be 36 columns. These will support the radial girders, which will extend outward 110 ft and increase the elliptical axes to overall lengths of 530 ft and 425 ft.

The 110 ft perimeter band under the roof will be occupied by planes when loading or discharging passengers. This area will not be closed in, however, around the perimeter. The roof deck of the terminal will be a 4 in. concrete slab, supported on beams framed between the main girders. The latter will project above the slab.

The main passenger entrance of the terminal will be a 100 ft wide air curtain—no doors—a feature expected to meet the approval of passengers carrying luggage in both hands.

Designers of the project are Tippetts-Abbetty-McCarthy-Stratton, architects-engineers; and Ives, Turando & Gardner, associated architects. Both are New York City firms.

As the construction season approaches . . .

State Road Plans Get a Hard Push

The highway pot continued to boil on state-level burners last week, as more state legislatures wound up their sessions, and departments began to push hard to meet the coming construction season.

Developments included:

A special session of the Arkansas General Assembly—which had closed its regular session without making any appropriation for the Highway Department—finally approved $164.5 million in funds for the department (ENR March 28, p. 24). Wasting no time, the department immediately programed $9.3 million worth of work, and awarded contracts for $3.7 million more.

Arizona's governor signed an amended bill that clarified the state engineer's powers to engage outside consultants for highway work; but in Pennsylvania, where the use of consultants has been under attack, the State Corporations Bureau reported that four engineering firms, holding more than $3.5 million in state contracts, are not registered to do business in the state. The firms—two of which have their headquarters in Philadelphia, the others in Harrisburg and Pittsburgh—contended that they are entitled to do the work, because one or all members of the firm are legally registered.

South Dakota's legislators approved a one-cent gasoline tax rise (to 6 cents) to match federal funds, and also earmarked $750 annual profits a state-owned cement plants, also for highway purposes.

Two states—Ohio and North Carolina—took action to aid smaller communities in right of way matters. Ohio's Governor C. W. O'Neill ordered his Highway Department to share all costs of planning and right of way acquisition with local governments; North Carolina considered a measure requiring the highway fund to bear the full cost of right of way in communities of 5,000 persons or less. Also in North Carolina, commission chairman A. H. Graham asked the legislature to provide him a fund equal to 3 to 5% of salary costs, so that he can meet competition for engineering personnel.

Colorado's Department of Highways got a welcome boost from the U.S. Bureau of Public Roads, in the form of a $2.8 million check—an advance on the state's allocation of federal-aid highway funds. The state was in financial trouble when it found that it couldn't sell $8 million in tax-anticipation warrants because of the low interest rate (2.34) permitted by state law.

And in Columbus, the State Highway Department announced employment of six engineering firms as consultants on the 104 mile Columbus-Cleveland leg of a four-lane, limited-access highway that will take the place of the now abandoned Turnpike No. 2. The firms are: Amman & Whitney, New York City; Porter-Urquhart-McCreary, Newark; Shaffer, Parrett & Associates, Mansfield, Ohio; Michael Baker Jr., Rochester, Pa.; Biswenger & Hock, Akron, and J. E. Griener, Baltimore.

• **Other developments**—Elsewhere on the highway fronts, tunnel builders at Norfolk, Va., passed a milestone when the last bulkhead was burned through on the sunk-in-place Hampton Roads Bridge-Tunnel, thus making the 7,500 ft long single tube the longest of its type in the world. Opening is scheduled for November, but ventilator buildings must still be finished and equipped and other work is still incomplete.

In Connecticut, the Highway Department announced consultant fees on the Connecticut Turnpike will total $17 million in payments to 34 firms.

Pennsylvania's Turnpike Commission said it was considering plans to operate its own radio station, to beam weather and road condition announcements to motorists using the pike.

In Seattle, the question of a new bridge across Lake Washington was far from settled. The State Toll Bridge Authority fixed a site several miles above the present bridge. City officials refuse to agree—and their consent is required.

And Ohio's Turnpike marked its first birthday in a rosy glow of health, according to an annual report. January-February-March, 1957 receipts were up 29.4% over the same period a year ago; truck payments for the month of March, at $450,000, were the greatest so far collected. Total revenues from all sources in 1956 were $15.4 million.

• **No Sundays?**—There was even a note of wry humor in the week's highway news.

California lawmakers killed a bill that would have banned trucks on the state highways on weekends.

Complained the bill's author, Assemblyman Charles H. Wilson of Los Angeles: "This is a grass roots bill. The people want it. But the interests it affects are opposed."

$53 Million Set for Airport Work

Early announcement of federal funds gives cities a chance to prepare for a fast start on 334 projects

Planning to give cities a fast start on airport work for the coming construction season, the Department of Commerce last week announced federal funds totaling $55 million for 334 projects in the U. S. and its territories.

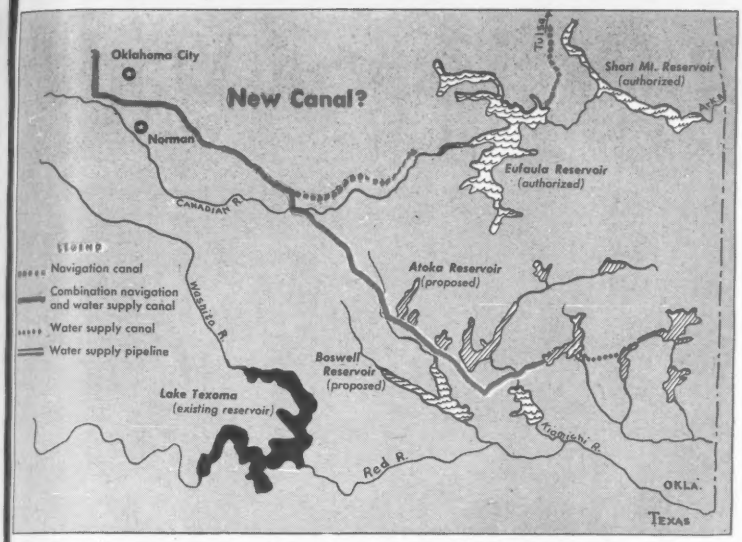
Commenting on the announcement of the allocations, Commerce Secretary Sinclair Weeks pointed out that in the past fund announcements were made in June. The earlier announcement this year will give cities a chance to prepare their jobs in advance of the beginning of the new fiscal year—July 1, when the new money becomes available.

The 334 projects covered in the announcement do not include Wisconsin and Wyoming, which are expected to submit programs shortly. The funds are administered by the Civil Aeronautics Administration, which anticipates no difficulties in local matching of the federal money.

Biggest of the works listed include: $1 million for the City of Birmingham for an administration building and other work; $1.3 million to Los Angeles for a new ramp and taxiways; $1.3 million to Oakland, Calif., for an administration building, control tower and runway work; $1.3 million to Miami for a terminal apron, and extensions to the Dade County Airport administration building; $1.3 million to Atlanta for an apron, and work on the administration building; $1.3 million to Chicago for runway extensions at O'Hare Field.

Other projects include $1 million for work on the New Orleans administration building; $1.3 million for parallel taxiways and other work at Detroit-Wayne Major Airport; $2.5 million for work on LaGuardia and Idlewild Airports at New York City; $1.1 million for extending a runway at Cleveland's Hopkins Airport; $1.3 million for site preparation for runway and taxiways at Pittsburgh's Greater Pittsburgh Airport; $1.2 million for work at Honolulu International Airport.

Three cities had the distinction of the smallest allocations. Mount Vernon, Ill., and David City and Gordon, Neb., each got $5,000 for miscellaneous work.



OKLAHOMA CITY looks to 200 mi canal that would supply ultimate water needs, provide navigable channel all the way to Gulf of Mexico via the Mississippi River.

Canal Would "Flow" Uphill

Preliminary study calls $500 million navigation-water supply scheme for Oklahoma City feasible

As the ultimate solution to its water supply problem, Oklahoma City has begun looking seriously toward a 200 mi navigable canal, one that would flow, if that is the word, from a distant source 600 ft below the elevation of the city.

The city recently received a $65,000 study which called the plan, shown on the map, economically feasible. Action has already been instigated in Congress for a more complete study.

Oklahoma City is now constructing Atoka Reservoir and plans early construction of four other reservoirs near this one and a 125 mi supply pipeline. This project, to meet the city's immediate water needs, would become part of the canal scheme. As now contemplated, the combination water supply-navigation canal would be 9 ft deep, 90 ft wide at bottom and 140 ft across the top. It would convey upwards of 1 billion gal of water per day to Oklahoma City from the Kiamichi Mountain area which is about 600 ft below the terminus. Average annual rainfall on the source area is 50 in. as opposed to only 30 in. at Oklahoma City.

Rough estimates place project cost somewhat in excess of $500 million and construction time at 15 years.

The proposed canal would tie into the Arkansas River basin project, as regards navigation, via a canal to Efuaula Reservoir, now under construction by the Corps of Engineers. Since a 9 ft navigable depth to Tulsa is authorized under the Arkansas River project, Oklahoma sees its project eventually providing a navigable channel all the way to the Gulf of Mexico, via the Mississippi River.

Both state and city of Oklahoma hope to get the federal government to participate. Indeed, Maj. Gen. E. C. Itschner Corps of Engineers Chief recently inspected the area with Oklahoma's Sen. Robert S. Kerr and declared that from his personal observation the plan appears sound.

The unique scheme was conceived by engineers Guy B. Treat of Oklahoma City and F. J. Wilson of Tulsa. Education & Technical Consultants, Inc., Evanston, Ill., carried out the initial study.

Capitol Confusion

Dispute over proposed design delays rebuilding of the capitol in Arizona

Arizona officials can't make up their minds on the type of architecture they want for their new capitol—even with advice from Frank Lloyd Wright, a part-time Arizona resident.

Lawmakers gave up in despair for a year, after a small spark of debate flared into a state-wide conflagration over whether plans should be "traditional-looking like what a capitol ought to look like," or whether it should be something as radical as proposed by Wright—a Siam-type, hexagonal building with copper dome, rooftop fountains and two "century-plant-like" television antennas.

Arizona has a building fund of some $7 million with which to construct a capitol. The present building was constructed back in territorial days and never was completed fully. It is reported to be infested with termites and dry rot and has exposed wiring and window coolers dangling on the outside.

Gov. Ernest McFarland wants to fix up the old structure. He likes Spanish architecture. Opponents claim it would cost more to renovate the old building than to build an entirely new one.

One firm, Associated Capitol Architects, assigned the task of proposing a plan, designed a series of towers—some capped by a dome, some with two domes, and one a "windows-on-one-side only United Nations-type" structure. These varied in height from a few stories up to 20.

Frank Lloyd Wright offered a one-level design that he claims will cut $2 million from the cost of building other proposed designs and be less costly to maintain.

He calls for a hexagonal canopy of reinforced concrete covered with copper plating. Fountains would gush from the roof, and there would be a dome that would filter light into the interior. Labeling all other plans as "betokening incompetence," Mr. Wright protested that "A capitol in the sun country should not resemble anything in New York City."

As for a capitol dome atop a 20 story building, he scoffed: "Looks like a hat on a post."

Baltimore Port Surveyed For General Cargo Piers

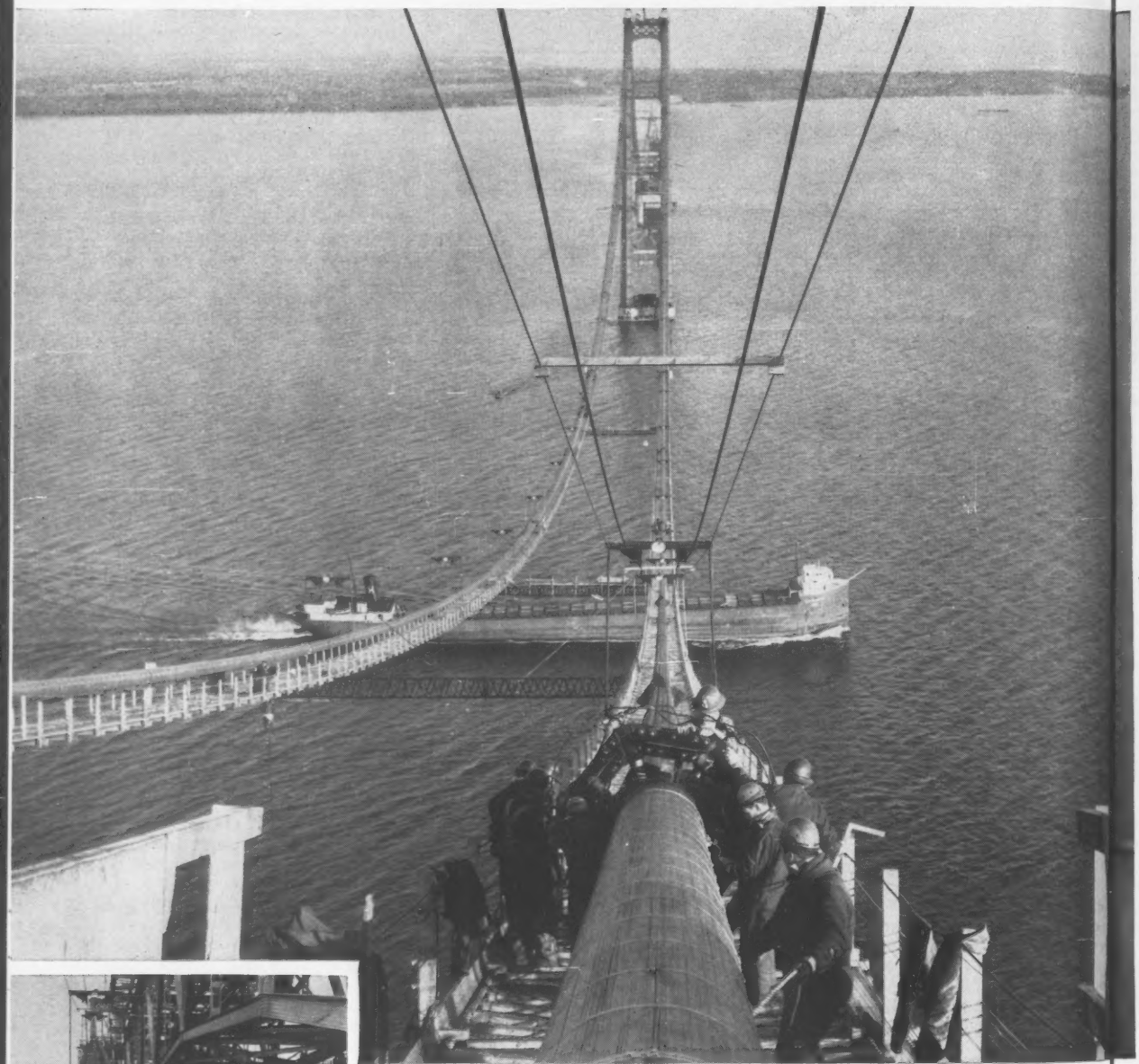
The Marvland Port Authority has engaged J. E. Greiner Co. to conduct a 45 day survey to determine where new general cargo piers should be built in Baltimore.

Information accumulated by the Port Authority in conducting recent studies will be made available to the engineers. In addition, they will have two reports made in 1949 and 1954 by the engineering firm of Knappen-Tippetts-Abbet-McCarthy.

Waterfront interests were particularly pleased with the announcement because it confirmed reports that more than one site and more than one general cargo pier are being considered by the agency in its program of general improvement.

The authority has concentrated on general cargo facilities since it was organized last year because of the steadily increasing volume of goods in this classification moving in both export and import through Baltimore.

The Mighty Mackinac...World's



Main cables being compacted by jacks and bound with steel bands. Catwalks are supported on five 2¼" Tiger Brand Wire Ropes which will be pre-stressed and used later for vertical suspenders.

Clamping main cable. Workman prepares to clamp a bundle of 340 wires into a strand. Thirty-seven strands will make up the completed cable, two feet in diameter.

Quick facts about the Mackinac Bridge

Owner: State of Michigan, Mackinac Bridge Authority, Prentiss M. Brown, Chairman

Designer: Dr. David B. Steinman

Substructure Contractor: Merritt-Chapman & Scott Corporation

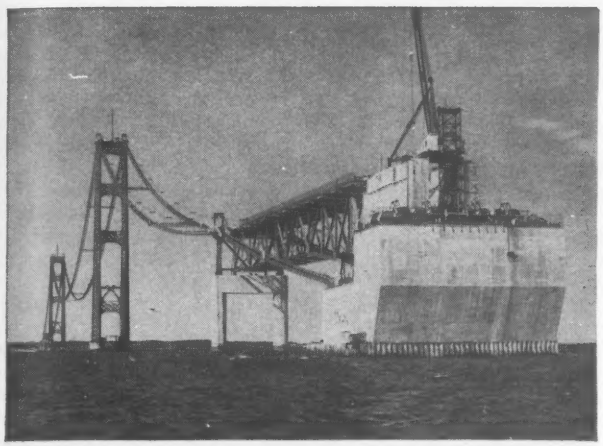
Superstructure Contractor: American Bridge Division, United States Steel

Wire Rope Manufacturer: American Steel & Wire Division, United States Steel

Total length: 26,444 feet • Suspension Bridge length: 8,614 ft. • Main Span length: 3,800 feet • Tower height above water: 552 feet • Total length cable wire: 41,000 miles • Total length wire rope suspenders: 125,000 feet. Wind resistance: 120 miles per hour • Approximate cost: 100 million dollars.

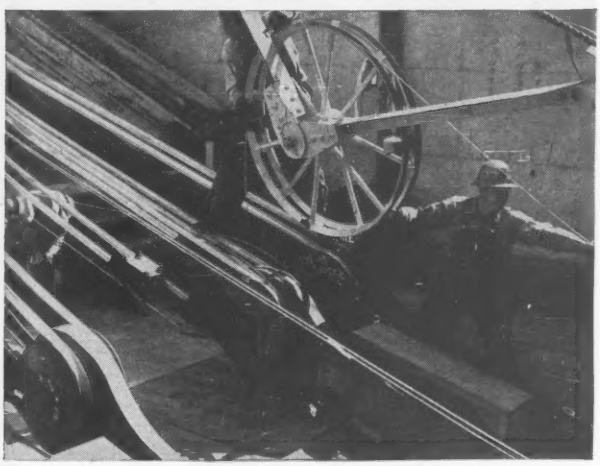
d's longest suspension bridge

...8,614 ft.



Solid anchorage for the main cables, high as a 10-story building and covering an area equal to about one-third of a football field.

Key step in cable spinning operation. Workmen putting cable wire loop on the spinning wheel and adjusting wire on the anchors. Each cable is spun by two wheels shuttling back and forth; each wheel pulls two loops or four wires per trip from one anchorage to the other.



The new Mackinac suspension bridge spanning the straits between Mackinaw City and St. Ignace, Michigan is 8,614 feet long including anchorages. This makes it the world's longest single suspension bridge. The over-all length of the bridge with approaches is 26,444 feet. (The San Francisco-Oakland Bay bridge has a total length of 8¼ miles, but is in reality two bridges with an island between.)

When completed as a four-lane artery, the Mackinac bridge will link Michigan's upper and lower peninsulas. Cars can cross in 10 to 12 minutes—6,000 of them per hour. Contrast this with 45 to 55 minutes on car ferries with a total capacity of 416 cars an hour.

The two main towers are as high as 46-story buildings—552 feet above water level. Over these, two huge suspension cables have been "spun" from 41,000 miles of American Tiger Brand Galvanized Bridge Wire. These cables are two feet in diameter and will support the bridge floor through vertical suspenders of 2¼-inch-diameter Tiger Brand Galvanized Bridge Rope. A total of 125,000 feet of suspender ropes will be used in the completed bridge. These will be pre-stressed to remove structural stretch.

The ability of American Steel and Wire to engineer and produce the Bridge Wire and Wire Rope for jobs of this magnitude is proof of the superior quality you can expect from any type of Tiger Brand Wire Rope you need. Write for our latest book.

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C.E.D. Supports Foreign Aid

Committee of business leaders urges enlarged, long term program and spells out its essentials

Assisting in the economic growth of underdeveloped countries is vital to our national security and will enrich our world trade and investment opportunities, said the Committee for Economic Development in a policy statement issued last week. The C.E.D., which is a non-profit, non-political economic research body, includes many of the nation's top business leaders in its membership. Signing the statement for the special committees, which developed the policy, were Frazar B. Wilde, president, Connecticut General Life Insurance Co., and Howard C. Petersen, president, Fidelity-Philadelphia Trust Co.

The C.E.D. statement stressed the necessity for a long term program in which loans rather than grants should predominate. It urged that the expansion of the program should take place in the underdeveloped countries of Asia, Africa and Latin America. And it states that recommendation of such a foreign aid program is made "in full recognition of the need for economies in federal expenditures to prevent inflation and to permit important tax reductions," but that "there are few federal functions more vital to our national interest, although there are many programs that carry greater political weight because their benefits are more obvious and closer to home."

The committee does not advocate a reduction in aid to the present seven main Defense Support countries, but rather an extension of this aid into more underdeveloped areas. No recommendation is made as to the specific amount the U. S. should make available, but it is stated that the outlay of $5 billion in five years in addition to our present program could be regarded as a desirable and necessary investment.

The statement spells out eight guiding principles for the development of an effective foreign aid program, as follows:

1. Economic development is a long-term process that can be advanced effectively only with a long-term program of assistance.

2. Wide variations of conditions in the countries involved require country-by-country programming, all directed toward a general goal of achieving economic growth and encouraging stability and independence.

3. Particular cases will call for use of multilateral assistance agencies but, generally, the United States should decide which countries and what projects should get the assistance it provides.

4. In most cases assistance should go to specific projects. Projects should be consistent with a country's overall development prospects.

5. Loans best fit the objectives of development assistance, but some grant will be required.

6. Development assistance should take especial account of the need of underdeveloped countries for enterprises and management that can use capital and labor effectively.

7. Assistance agreements should not be encumbered with mutual defense or friendship guarantees.

8. The United States can, and should, use its agricultural surpluses in promoting economic growth in the underdeveloped world.

Stokes T. Henry

ENR Pioneer Dies

Stokes T. Henry, 76, was McGraw-Hill executive

Stokes T. Henry, who joined the editorial staff of Engineering Record in 1904, immediately after his graduation in civil engineering from the University of Illinois, and rose to be vice-president of the McGraw Publishing Co., and later assistant to the president of the McGraw-Hill Publishing Co., died in his home town of Spruce Pine, N. C., March 30. He would have been 76 years old on April 9.

Widely known in the construction industry and the general business world, "S. T.", as he was always called, was a civil engineer, journalist, advertising salesman, publisher, industrialist, business man and farmer at various times in his busy life. For the past 30 years since he severed full time connection with the McGraw-Hill Publishing Co., he had been editor and, until recently, owner of the Tri-County News, a weekly newspaper published in Spruce Pine. He also established several other business enterprises in the town, and was active in developing it as a small-factory community as well as a center for mica mining.

After starting on the editorial staff of the old Engineering Record, Mr. Henry became its western editor in Chicago and then, after joining its advertising sales staff, its western manager.

In 1912, Mr. Henry came to New York City as assistant to James H. McGraw, Sr., founder and, at that time, president of the company. He was named a vice president, and during the latter part of 1916 took part in the discussions that led to the consolidation of the McGraw and Hill companies, and the creation of Engineering News-Record.

In 1917 he left McGraw-Hill to enter the construction machinery business, but nine years later he returned to the company on a part time basis, which was maintained in various degrees for the remainder of his life.

For a short time, prior to World War II, he served as publisher of Engineering News-Record, and during the war period, with the title of assistant to the president, he was the McGraw-Hill liaison representative in Washington.

Radar Dome Will Cap New Control Tower at Newark

A 17 ft dia radar dome will top the 12 story control tower to be built by the Port of New York Authority at Newark Airport this fall. The position of the dome, enclosing a rotating radar antenna, will increase the operations personnel control of airborne planes.

The tower itself will be located in the center of the field, giving the controllers a better view of the two active runways than the present 65 ft tower located on the field's eastern boundary.

The 150 tower will cost $1 million when it is completed in early 1959. It will be equipped and occupied by the Civil Aeronautics Administration.

The tower's 12th floor, just below the radome, will hold the radar antenna equipment. The control cab will be on the 11th floor. The rest of the tower will be given over to radio, maintenance rooms and offices. An elevator reaching to the 9th floor, will speed personnel movement.

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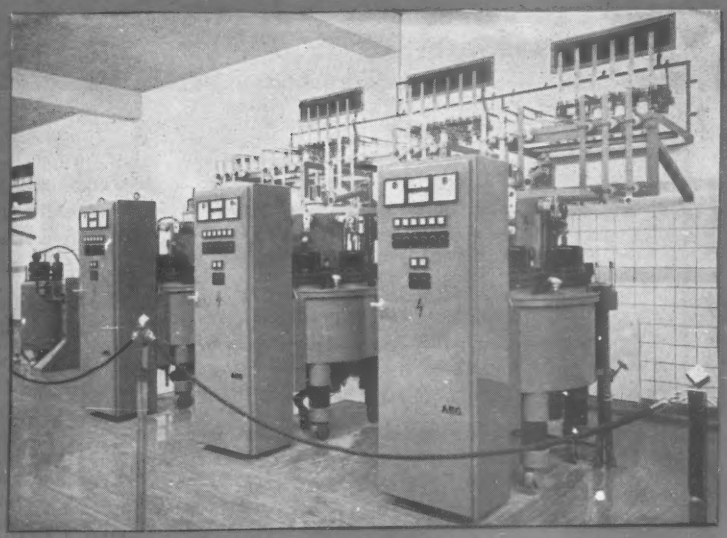

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D9 MOVES BIG YARDAGE

for MORRISON-KNUDSEN

A CAT* D9 Tractor with No. 9S Bulldozer is the prime earthmoving tool on this Morrison-Knudsen contract in Idaho. The job—relocating 11.37 miles of the Idaho City-Owl Creek road—involves clearing 64 acres and moving 337,000 cubic yards of dirt and rock. One rock cut is 87 feet deep and there are fills up to 30 feet.

With its huge 14-foot 'dozer, capable of handling up to 9 cu. yd. at a blade load, the D9 makes 40 passes, 200 feet long, per hour.

Now that the D9 has proved itself on jobs all over the country, owners recognize it as the top production machine among big tractors. It's the first track-type tractor with Turbocharger. The 286 HP Caterpillar Diesel Engine gives it ample power to match its weight and traction. You have a choice of torque converter or oil clutch drive. And there is "Live-shaft" drive for rear-mounted equipment.

Operators say this big machine is "as easy to handle as a small tractor." Easy to service, too. The exclusive, trouble-free oil clutch, separately removable power train components and a fuel system that needs no adjustments in the field are among the reasons why.

Your Caterpillar Dealer can give you some eye-opening facts about the economy of the D9 for big yardage jobs. Ask him for a working demonstration today.

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Municipal and industrial waste conference hears . . .

Sewage Reuse Urged As Water Saving

"As the water table of a nation goes down, its civilization withers and dies."

This fresh expression of an old truth came from Senator Wayne Morse last week as he sounded the keynote for the Sixth Southern Municipal and Industrial Wastes Conference, held at North Carolina State College in Raleigh.

Turning its attention this year to a theme of water conservation and development, the conference through its speakers stressed the need for proper pollution control as a water conservation method, and reuse of municipal sewage plant effluents as a dependable industrial water supply.

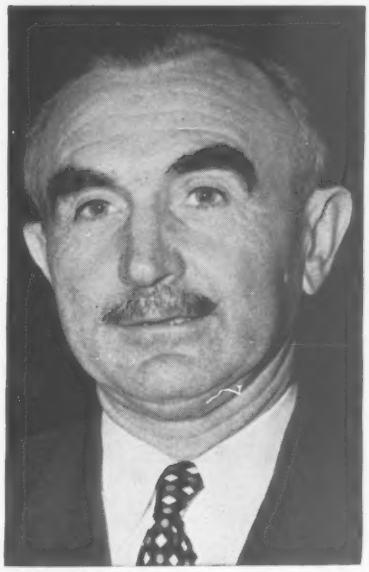
W. A. Dexheimer, Commissioner of the U. S. Bureau of Reclamation, echoed Senator Morse in urging comprehensive development of river basins, then advised state legislatures now considering revision of state codes to set up systems for control of groundwater as well as surface streams.

Pollution control was considered by both the commissioner and the senator to be one of the basics for meeting future water demand—even though they believe pollution control now stands low on the list of state and municipal interests.

• **Reuse of effluents**—John C. Geyer, professor of sanitary engineering at Johns Hopkins University, reviewed the case for reuse of sewage effluents for industrial water supply. Even in areas where natural water is abundant, effluent may prove to be a cheaper source, it was pointed out. Certain conditions must of course exist: (1) a conveniently located industry that can use the quality of the treated sewage and (2) adequate sewage effluent to meet the demands of the industrial user.

One instance cited where reuse has proved desirable and profitable—to both industry and municipality—is the now classic example of Bethlehem Steel's Sparrows Point mill at Baltimore, Md. There Bethlehem is using 85 mgd of treated sewage from the city's Back River sewage plant, five miles away, at a cost of two cents per 1,000 gal. This figure can be compared with the steel plant's other sources: brackish river water at one cent per 1,000 gal and treated artesian groundwater at 20 cents per 1,000 gal.

Drawing on fresh water supplies, in place of the treatment plant effluent, would have meant going 15 to 20 miles distant instead of the five miles to the sewage plant—at an obviously greater cost.



KEYNOTER—Northwest's water-conscious Senator Morse invades the Southeast.

Among the hundreds of instances where reuse of effluent now has been noted, agriculture was reported to be the most frequent user. The list also includes such diverse applications as oil refining, railroads, municipal incineration and mining.

In addition to its suitability and relative cheapness for industrial use, the advantages of regularity and reliability were emphasized—flow of sewage being quite uniform compared to stream flow. Also, guantity, or flow, can generally be expected to increase gradually over the years.

• **Treatment advances**—Also on the conference program was Ralph E. Fuhrman, executive secretary of the Federation of Sewage and Industrial Wastes Associations who ran through a number of recent treatment developments that he believes show promise.

Among these: waste stabilization ponds for small communities; activated sludge with the bioabsorption twist; use of high purity oxygen; vertical mesh filters; and aneorobic treatment. Other advances cited by Mr. Fuhrman were flow meters using magnetic fields or ultrasonic waves; radioactive tracers to follow movement of sludge in digesters; and photographing of the inside of sewer lines for inspection.

As for waste stabilization ponds, W. W. Towne, chief of the Water Pollution Control Division, U. S. Public Health Service, Cincinnati, Ohio, briefly described results of a study of five such systems in the Dakotas.

The self-purification units were found to effect a BOD removal of from 87% to 90% normally and 70% to 90% when iced over. Coliform removal ran from 60% to 99.9%. The ponds were loaded at a relatively low rate of BOD per acre it was admitted. But such a loading made spring recovery (the pond becomes septic during heavy winter icing) possible in a week or less, minimizing the odor problem. Also, the ponds were designed for future critical loading, instead of present light loads.

Conclusion was that the efficiency of waste stabilization ponds in warm and arid states, such as the Missouri Basin and the Southwest, is confirmed. The results matched those of conventional systems, it was believed.

Freeway-Floodway Plan Eyed at Albuquerque

Construction of a new freeway to bypass the congested business district of Albuquerque, N. M., may include a final harnessing of Embudo arroyo—a mostly-dry stream that has occasioned numerous floods in the city.

The arroyo slashes across the city from northwest to southeast and, for most of its course, parallels the route selected for the freeway. Solution, say state highway engineers, is to include the arroyo in the freeway, using it as a median.

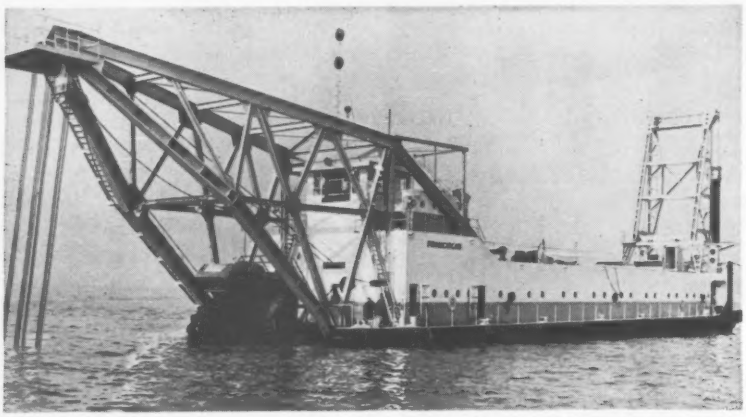
The Embudo Freeway, on which the Highway Department has already spent $869,000 in right of way costs, is designed to carry east-west traffic north of the ctiy's downtown area, running from an eastern terminus near the eastern city limits with U. S. Route 66, following the arroyo, and returning to Route 66 west of the city's major business area.

Gordon Herkenhoff, Albuquerque consulting engineer who serves both the Highway Department on the freeway project and a local flood control district, said the freeway and floodway could be built as a single project, paid for by the state, and then the cost of the floodway repaid by the district.

Final decision has been held up, pending a report from a second consultant working on the flood-control project.

One Firm's Formula for Success: Div

. . . **BY LAND RECLAMATION**—Filling in San Francisco Bay tidelands is part of Utah Construction Co.'s program to buy up—and then develop—strategically-located properties.



. . . **DREDGING**—Another new activity—hydraulic dredging—is being carried out with the aid of one of the world's largest dredges, the "Franciscan" specially designed for Utah.

Barbara Lamb
Staff Writer

Today—where only flowing tides existed before—a new building site is being lifted out of San Francisco Bay.

More than 1,300 acres of Alameda's tidelands are being reclaimed to provide a site for a new $100 million community. And the brains as well as brawn behind this scheme for land development and resale belong to big Utah Construction Co.—far famed for heavy construction and engineering but always on the lookout for new fields of success.

During its 57 years as a corporation, Utah has moved mountains, tamed rivers, built scores of dams, tunnels, powerplants, railroads, highways, bridges, military installations. It pioneered formation of Six Companies, Inc., builders of Hoover Dam. Its name is linked with such construction giants as the Alcan Highway, San Francisco-Oakland Bay Bridge, New York Aqueduct, Hetch Hetchy water supply system, Bonneville and Grand Coulee Dams.

Utah still is wrapped up in a wide range of heavy construction and engineering work both in the U. S. and abroad. But frequent ventures from the beaten path reflect its basic philosophy: Diversification in operation. And the tidelands projects are prime examples of the Utah method of careful expansion into new fields.

Both projects are within the city limits of Alameda, a palm-lined community built upon a Bay island and so thoroughly developed that it's a tough task to find a vacant lot. Utah's

. . . **MINING**—Since its move into mining over a decade ago, the company has continued to explore and develop new properties. Today mining operations involve iron in Utah, Canada and Peru, coal in Arkansas, copper in Arizona, uranium in Wyoming.

...Diversification

M. S. Eccles . . .
Chairman of the Board

A. D. Christensen . . .
President, Gen'l Manager

E. W. Littlefield . . .
Executive Vice President

. . . of the UTAH CONSTRUCTION CO.

This globe-trotting trio—members of the executive committee—guided 57-year-old Utah to its most profitable year during 1956. The company, formed in Ogden with $25,000 capital, devoted its first 20 years almost exclusively to railroad projects. Then Western expansion built up its reputation in heavy construction and engineering. And today its spread-the-risk philosophy is opening up still new fields of success.

plan for giving Alameda new room to grow in will furnish housing for 4,500 families. But there's more to the story.

Says Charles Travers, Utah executive in charge of the projects: "The new communities will rival showplaces in Florida and southern California by locating residential, professional, business and shopping districts around a series of landlocked lagoons."

Major credit for tackling the tidelands goes to Utah President Allen D. Christensen, who saw possibilities in the projects as far back as the Korean War. One Utah executive puts it this way: "He was the visionary on it–trying to create a value where there was no value before. We used to call it 'the-land-the-boss-bought-that's-underwater.' But he made converts out of the rest of us."

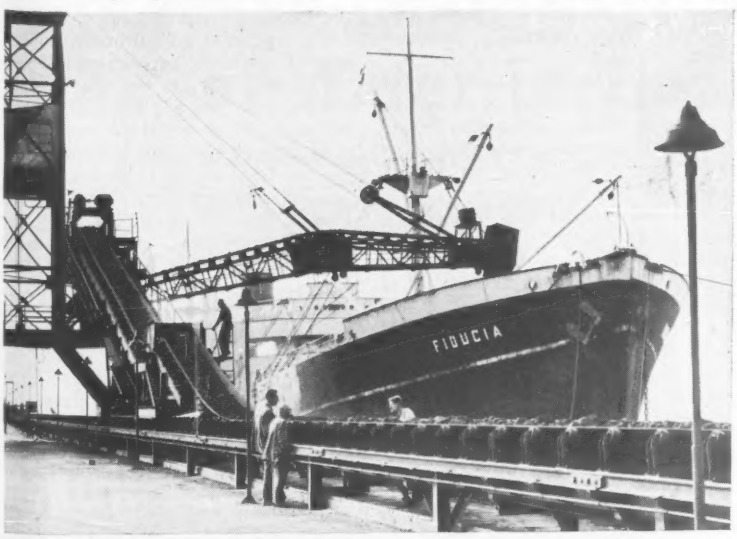
The residential field didn't become a happy hunting ground for the company until after World War II. In fact, both the war and post war periods acted as a catalyst to Utah's policy of diversification.

Early in the '40's the company entered the field of industrial plant construction. Then, increased industrial expansion created critical housing shortages. And Utah decided that since it was experienced in building temporary quarters for its workers, transition to construction and design of private houses should be simple. In turn, putting up housing for the federal government and private industries in key areas led the firm into the commercial building field–and such projects as hotels, office buildings, apartment houses, underground garages, and schools.

Today–while agreeing that the tight money situation in the residential field touches the entire construction industry–old Utah hands believe that, in the long run, the only major effect will be in the timing of projects. And the company's own developments have been planned on a long-term basis.

Ownership of the tidelands property already has been responsible for reshaping the construction company setup: It detoured the firm into the dredging business. And it is a wholly-owned subsidiary – Utah Dredging Co. – that will carry out the assignment to fill the tidelands area with over 36 million cu yds of material scraped up from beneath bay waters, using the 30 in. hydraulic dredge "Franciscan", specially built for the job.

But even with added complications, guiding forces in the company still are convinced that there is a chance to further puff profits by continuing to develop strategically-located lands.



. . . **SHIPPING**—To cut down on the cost of ocean shipping in connection with its mining ventures, Utah is building up its own fleet of specialized carriers to deliver the ore.

• **Fifty years ago**—Back at the turn of the century there was little indication that Utah would grow from a fledgling firm with $25,000 capital to one of the bulwarks in construction (1956 net worth: $21.1 million).

Board Chairman and Ex-Utah President Marriner S. Eccles is the expert on company history. He often heard the story of Utah's start from his father, who was one of the original backers.

Eccles recalls: "Utah was incorporated in 1900 at Ogden as a successor to Corey Bros. Construction Co., which was associated with Wattis Brothers on a job at Astoria, Ore. The Coreys found themselves in financial difficulties–heavily in debt to the First National Bank of Ogden. So the Wattis brothers persuaded owners and officials of the bank to organize a company to take over the Corey's interest. This was the beginning."

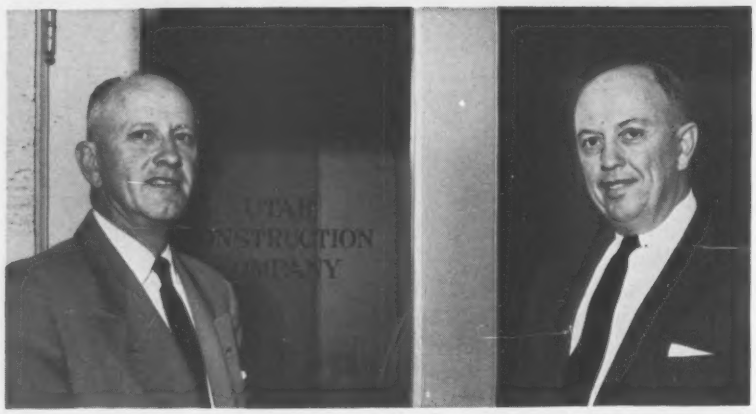
Bank President David Eccles took a third interest in the new company. Thomas Dee, vice president of the bank, took a sixth interest and was made Utah's president. Jim Pingree, cashier of the bank, took a sixth interest and was made secretary-treasurer. The Wattis brothers took a third interest and W. H. Wattis became vice president and general manager.

Three years later Christensen Construction Co. of Salt Lake was merged into the firm and A. H. Christensen (father of Utah's present president) became a director as well as manager of the Salt Lake division.

From then on Utah's history goes hand-in-hand with the robust growth of the west.

(Continued on page 36)

. . . Utah gained its experience during the galloping growth of the western states



TOP UTAH EXECUTIVES, Guy Sperry (left), vice president and chief engineer, and C. S. Davis, general vice president, meet in San Francisco executive offices at 100 Bush St.

By the early part of the century American's frontier, stretching to the Pacific, needed transportation and communication. The young construction company, which had increased its capital to $100,000 within the first year, was successful from the start doing small jobs for western railroads. Most of its work involved improving lines radiating from Ogden. But the project that proved to be the turning point in its history was building 700 miles of Western Pacific trackage from Salt Lake City to San Francisco in 1906.

This $23 million project included a 75 mile reach through the rugged Feather River Canyon and the driving of some 40 tunnels from 50 to 7,500 ft in length. By the time the job was finished the firm had established itself as a major factor in the fruitful field of railroad construction. And as other famous lines added their names to its list of clients, Utah entered a 20 year period devoted almost exclusively to railroad work.

• **New horizons** – Gradually, the company's interest spread as the west expanded. With evolution of machinery and equipment, revolutionary projects were undertaken in hydraulics, irrigation and highway fields. Utah took on canal and irrigation work in Washington, New Mexico and California. And then it raked up its infant road building experience throughout California, Nevada, Colorado and Idaho.

Utah started as a dambuilder by erecting small dams in its home state. But this type of construction already had played a part in the company's earliest experience, when it owned and operated stock ranches covering more than 1 million acres in Nevada. As an accessory to these cattle and sheep raising activities–which it carried on for over 30 years–Utah built two good sized earth and rockfill structures.

There are two years that were turning points in Utah's dambuilding career. One was 1920–the year it built O'Shaughnessy Dam, principal unit of San Francisco's Hetch Hetchy water supply system. The other was 1931–the year it, along with seven other ordinarily competitive companies, banded together as Six Companies to share financial risk, responsibility and profit on construction of Hoover Dam. Utah put up 20%–$1 million–as its part of Six Companies capital and Utah President W. H. Wattis became first president of the joint venture.

Today–some 50 years after its formation–Utah is controlled by heirs and assigns of the original backers, except for the Pingrees. And it is with this group (plus the Brownings of gun fame, who picked up a substantial interest during the last 30 years). that some 85% of the company's shares now reside.

This second and third generation of Utah's founders is taking an active part in company affairs. Three men in particular–the executive committee–carry a large share of the managerial load:

• Board Chairman Eccles, 66, is a bulwark of financial and business experience. His career includes service as assistant to the U. S. Secretary of the Treasury, chairman of the board of governors of the Federal Reserve System and a member of the advisory board of the Export-Import Bank. At present he is board chairman of both the Amalgamated Sugar Co. and the First Security Corp., which operates banks in Utah, Idaho and Wyoming.

• President and General Manager Christensen, 49, is a Stanford University civil engineering graduate who got his start as a superintendent for Utah in 1931. Before becoming an officer – vice president in 1944 – he worked as project manager and as district manager in Salt Lake.

• Executive Vice President E. W. Littlefield, 42 (grandson of founder E. O. Wattis), has been with Utah since 1951. A social science major at Stanford, he built up his business and financial background with such firms as Standard Oil Co. of California and Golden State Co., Ltd.

General company policy has been to maintain a well-knit central organization capable of directing and supporting individual field operations with maximum attention.

Says Littlefield: "To the fullest practical extent the company has a decentralized management and operation. But where there is a definite advantage to be gained, certain operations are centralized."

For example, the company's central purchasing department has proved its worth in rounding up scarce materials and other items needed in a short period of time to maintain schedules. This national buying power not only offers a wide market that seldom is available to local operations, but it guarantees continuous flow of work on all projects.

• **Mining made money** – Residential work isn't Utah's first sortie from its balliwick of heavy construction. Over a decade ago it moved into mining. The debut–in 1943–was a six year coal mining operation in Pennsylvania for Pittsburgh Consolidation Coal Co. Since then, the construction company has picked up its own open-pit iron and coal mines and built up a sure-footed organization to work them.

The move into mining, Utah executives feel, is a logical outgrowth of far-flung experience as earthmovers. Just how successful the experiment has been can be gaged by the fact that in 1953 the company was the top independent producer of iron ore in the west.

Mining income rolls in from working two iron ore claims at Iron Mountain in southern Utah for Colorado Fuel & Iron Corp. Profits also come from its own iron ore operations at Iron Springs Mine near Cedar City, Utah, and its own coal operations at Ozark-Philpott Mine in Arkansas.

In recent years mining activities have spilled over onto foreign shores. In British Columbia, a subsidiary is stripping iron ore at Argonaut Iron Hill Mine on Vancouver Island. In Peru, it has developed an iron deposit on the southern coast, near San Juan Bay.

• **Ruling an empire**–Today–from offices in San Francisco–Utah runs a world-wide empire. In addition to wholly-owned subsidiaries, it has stock

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. . . Basic bottleneck is acquiring necessary men, money

in 37 affiliated companies. One is Permanente Cement Co. Five are concerned with mining or shipping, two with heavy construction, one with grain elevator operations and 28 with construction or ownership of housing developments.

In ruling its empire Utah follows spread-the-risk philosophy: Keep the project portfolio balanced from the standpoint of long-term and short-term contracts, diversification in job types and countries in which work is to be done.

Today the company has the highest backlog of uncompleted contract volume in its history—over $150 million. Says Utah President Christensen: "In the absence of war or inflation, we are hopeful that results for the present year will equal or surpass those of 1956."

Utah is not leaving profits up to wishful thinking. It recently took another step to reap more financial rewards—that is, transfer of corporate entity from Utah to Delaware. This move will climinate some double taxation as well as add other tax benefits. And it also will permit launching of an employee stock participation program.

• **Men and money**—On the subject of capital and manpower, Christensen and Littlefield—with Eccles—emphasize:

• A successful construction company must have adequate capital for the volume of work it assumes, plus both men and equipment suitable for the work undertaken. But its most important ingredient is experienced management, with emphasis on the experience. In addition to the ability to manage, management must not only have the inventory of "know-how" wrapped up in its men, but the accumulated knowledge of methods and cost of operation.

• Utah has not actively and periodically recruited engineering students. But it maintains close contact with faculty members of engineering schools. And—more and more—it has been making use of college students, including non-engineering majors, during summer vacation periods. In addition, it has employed graduate students working on fellowships or other advanced college programs for special studies such as geologic surveys. (Last year the company set up its own fellowship at Stanford University's School of Engineering for a post-graduate student taking graduate work in construction. But there is no requirement that the awardee enter Utah's employ after he completes his studies.)

• Utah has two answers to the problem of a shrinking profit margin. The first is to concentrate on the type of work that—because of special circumstances peculiar to it as a company—it feels it can undertake and perform at a satisfactory profit margin; conversely, the company avoids seeking jobs where it either has no special advantage or is at a comparative disadvantage. The second is to employ capital and know-how in areas where it has greater control over factors that determine profit than it would have in the ordinary situation existing between owner and bidding contractor.

FILL LEVELING on tidelands is directed by George Jones, grading superintendent.

This philosophy has paid off—1956 was the most profitable year in Utah's history. Earnings during the fiscal year ending Oct. 31, 1956, totaled $2.4 million, or $2.76 a share. That compares with $1.7 million or $1.98 a share for the previous year. Counting its split of earnings from subsidiaries and affiliates, Utah made $4.2 million or $4.76 a share—$1 million more than in 1955.

In sizing up the situation, Christensen attributes increased profits to improved results from domestic mining activities as well as foreign work.

• **Foreign fields**—For a long time Utah's work was bounded by western states. It was construction of 100 miles of trackage for Southern Pacific de Mexico in 1923 that marked the company's entrance into foreign fields. The connection—climbing saw-toothed country east from Tepic—called for 35 tunnels and 33 bridges over deep, narrow canyons.

The project was good proving ground. By the time clouds of World War II were on the horizon, the company had many irons in the fire—including key military projects on Guam, Samoa, Hawaii and other Pacific islands. And as soon as hostilities ended, it was back to help with $68 million worth of reconstruction in the Philippines.

(*Continued on page 40*)

Shown here are four of the many, many ways that Revere Copper and Aluminum are being used in the construction field. In this type of work both designing and construction engineers have found that Revere's Technical Advisory Service is often very helpful. In the case of the Hungry Horse Dam shown directly below, the compound expansion and contraction of the concrete necessitated an elaborate system of copper joints. Revere Technical Advisors worked with the engineers to obtain the best possible system of joints. It is this kind of assistance, backed by a storehouse of knowledge spanning 156 years experience in working with non-ferrous metals, which may prove useful in the projects now on your boards.

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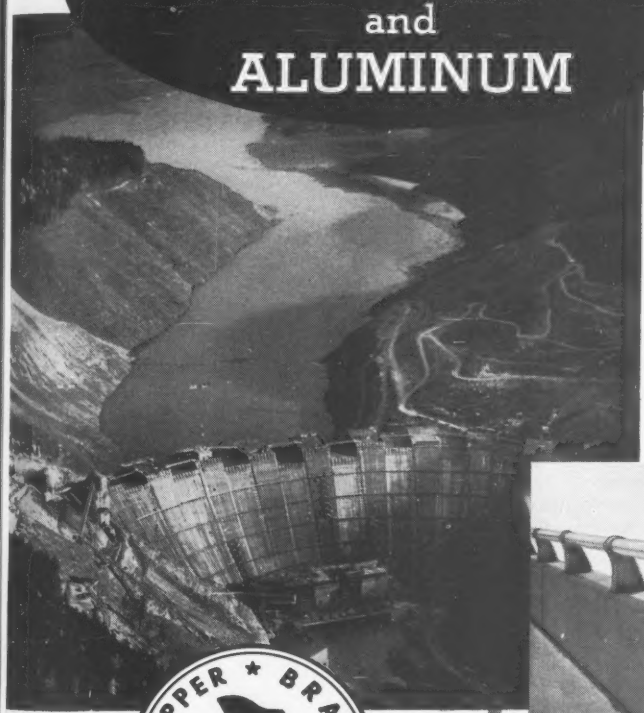
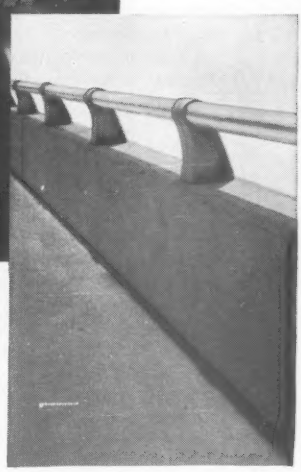
THERE WILL BE NO SNOW OR ICE on the concrete entrance apron of this warehouse of "Junket" Brand Foods, Little Falls, N. Y. Revere Copper Water Tube is ideal for snow-melting. Its light-weight and 60'-length coils make it easy to handle and install. Its soft temper permits bending, thus reducing the number of fittings used and its non-rusting characteristic makes it the logical answer for use in concrete.



HUNGRY HORSE DAM, Montana. On this $108,000,000 project more than 200,000 lbs. of 24 oz. Revere Soft Resquared Copper Strip were used as water seals. Engineers on the job chose copper because of its overall economy, its ease of handling in installation, its outstanding flexing qualities and its resistance to corrosion.



THIS BRIDGE RAIL of Revere Seamless Aluminum Tube is but one example of the wide range of sizes, alloys and tempers which Revere has available, bringing to the construction industry the advantages of light weight, corrosion resistance, strength, pleasing appearance and with economies to the manufacturer.

THE USE OF ALUMINUM LIGHT STANDARDS is growing by leaps and bounds. Makers of these standards use many Revere Aluminum Extrusions because they know how great a difference may exist between the design of a new shape on paper and the delivery of a fine extrusion in aluminum. They come to Revere for the experience and service needed to bridge this gap. For help on *your* specific extrusion problem, call the nearest Revere office and ask for a "TA" (Technical Advisor).

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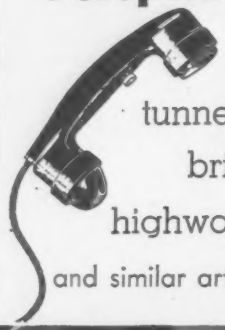

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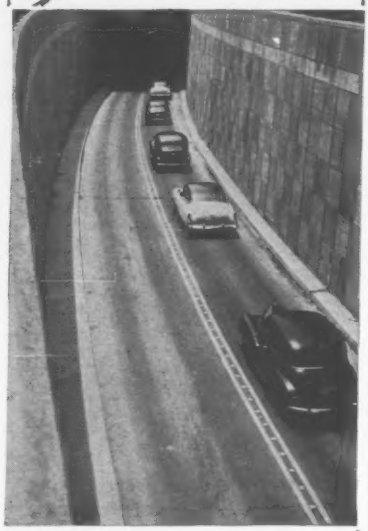

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. . . Foreign projects play vital role in company profits

Utah still is changing the face of the earth. It's hard at work on construction of Air Force housing on Okinawa; military and naval installations on Guam; dam and hydro facilities near Chittagong on the Karnafuli River in Pakistan; railroad reconstruction and a tungsten chemical plant in South Korea; Serre-Poncon Dam on the Durrance River in the French Alps; harbor developments and industrial plants in Mexico; roads and canals for Colombia; a 20 story office building in Vancouver, B. C.; Wayatinah "B" Tunnel for the Tasmanian Hydro-Electric Commission; facilities for the Toquepala copper mining project in Peru.

Foreign work is carried out primarily by three subsidiaries: Utah Co. of the Americas, a Western Hemisphere trade corporation; Compania Utah, S. A., a Mexican corporation, and Utah Australia, Ltd., a Nevada corporation set up to conduct activities in Australia and related areas.

In regard to foreign work, Eccles, Christensen and Littlefield told ENR:

• Utah takes on foreign jobs primarily to diversify its portfolio and to make it less vulnerable to fluctuations in domestic construction. Also, for the most part, foreign projects are "clean" jobs of substantial size calling for more than the ordinary amount of knowledge, know-how and construction ability in general—projects that only larger contractors are equipped to handle.

• The company has achieved some degree of protection by spotting its foreign work over a number of areas. Thus, it is less affected by adverse political or economic developments in any single country.

• Foreign competition is making the situation somewhat tighter. It hurts U. S. contractors most when the foreign competitor has some special advantage such as a government subsidy, particularly in the form of extension of financial terms—where the job is won by the organization that can give the owner the best terms and the best budget, rather than by the organization that can do the best job at the least cost. However, in the face of increasing foreign competition, Utah still has been able to boost the volume of its overseas construction backlog.

• One problem in foreign jobs is logistics—how to get people and materials over long supply lines to the site. Other difficulties stem from foreign exchange and financing, local regulations as to law, taxes, duties and excises—rules of the game that are quite different from those in the U. S. Then there is the ever-present problem of personnel, and the need for exceptional

RECEPTION DESK in San Francisco offices is backed by big Hoover Dam mural.

care in selecting men who will get along in the country in which they are guests and who will enhance the cause of both the U. S. and the construction company. Finally, there is the problem of adverse political and military situations, such as those in Korea.

One look at Utah's 1956 balance sheet shows the vital role that foreign projects play in company profits.

During 1956, domestic construction earnings—not counting joint ventures—increased over levels of the previous year. But, largely due to disappointing results from some joint ventures, gross income from domestic projects declined from 1955 levels. (For the most part, these joint ventures reporting losses are performing contracts that are relatively long-term in nature. And profits showed substantial improvement in the last few months of the fiscal year, when work had been completed on the early phases that caused heavy losses.)

During this same 1956 period, foreign construction earnings more than doubled. So the decreased domestic gross income was more than offset not only by U. S. mining activities but by investment income from subsidiaries and affiliated companies engaged in foreign construction and mining.

• **Eye to the future**—Today, Utah is busy with such projects as an atomic energy plant near St. Louis, Wanship Dam on the Weber River near Salt Lake City, Table Rock Dam on the White River near Branson, Mo., Long Sault Dam on the St. Lawrence River near Massena, N. Y. But what's on its itinerary for the future?

Says President Christensen: "We're expanding—for the present—in areas we already are in. We anticipate more large mining ventures, expansion into

HOW FIVE BAY CITY EXCAVATORS DIG OVER 400,000 YARDS OF CLAY FOR ¾ MILE CANAL

An excavation of more than 400,000 yards is a mighty big project... even to an oldtimer in the field, like Walraven Bros. & Sons whose BAY CITY excavators are here shown at work on an impressive and important industrial drainage canal.

In this striking action photo, one ½ yard crawler is working as a frostbreaker on frozen surface-soil; a second as a back hoe—while 3 draglines (1½ yd., 1 yd., and ¾ yd. sizes) take big-capacity scoops of soil at every bite! Notice that the back hoe (lower right) is performing the tough job of breaking and moving heavy blue clay.

This big ditch ranges from 17 to 26 feet deep; has 100 foot bottom, and 150 foot top. The completed canal will be used to drain hot water from a gigantic utility plant to a lake three-quarters of a mile distant.

"We know we'll complete this job well within the deadline," says contractor Frank Walraven, Bay City, Michigan. "I've bought 22 BAY CITY machines," he commented, "and I know they're reliable on every job we take on—big OR small." Walraven knows from experience . . . 28 years of it, as a matter of fact.

You don't have to be doing just the big jobs, however, in order to make profits with BAY CITY machines. There's a BAY CITY for YOU in any of 3 mountings: Crawler, CraneMobile or CraneWagon. All have the famous balanced machinery assembly on sturdy unit-cast, alloy-steel base, and all are designed with boom feet directly over the front conical table rollers for maximum balance with any attachment.

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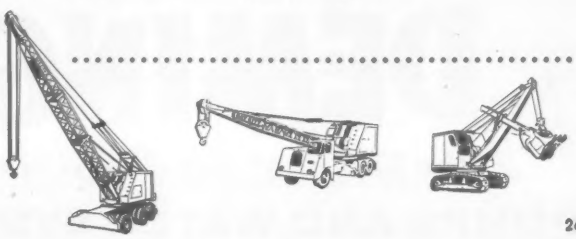

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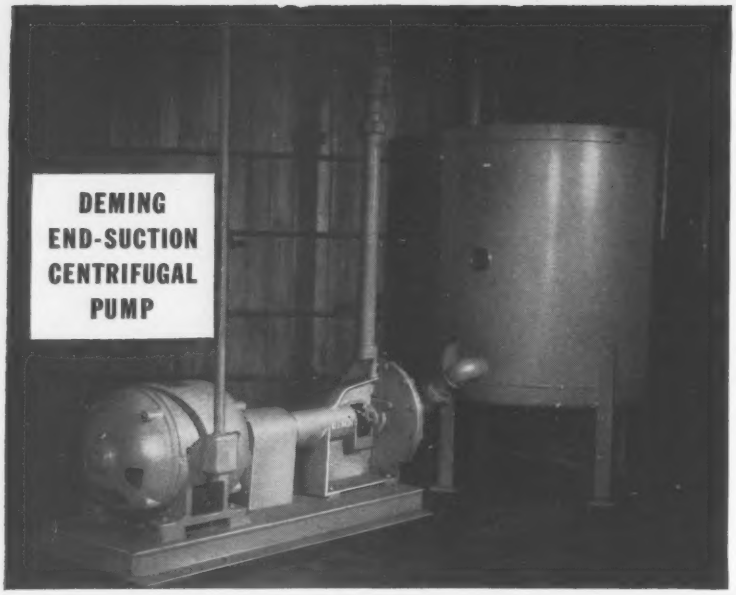

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. . . An eye to the future

shipping activities and new interests in residential work."

Until now Utah has kept its interest on basic metals. "But," says Christenson, "we're creeping over into uranium."

He refers to the fact that Utah has an option to acquire 60% of the capital stock of Lucky Mc Uranium Corp.

This company, which controls Wyoming lands with favorable indications of containing low grade uranium, already has contracted with the Atomic Energy Commission for construction of a $7 million uranium processing mill near Riverton to handle ore from the mine.

As far as residential work goes, Utah will keep on purchasing properties that can be developed on a favorable basis. Company officials feel that ventures in this field have been placed on a sound footing by acquisition of strategically-located lands in areas of galloping population growth.

Industrial construction also continues to hold Utah's interest. This field has been a major phase of company activities since 1942, when it sponsored a joint venture to build the $160 million Geneva Steel plant near Provo, Utah. But since then Utah has gone one step further—into the industrial park area. "We give a complete deal to industries if they want it—land, engineering and construction," Christenson emphasizes.

At Martinez, Calif.—at the mouth of the Sacramento River and bordering on the shore of Carquinez Straits—lies one example of the heavy type industrial park Utah is interested in. There, the company has purchased, or has a long-term lease on, 600 acres of river frontage and tidelands property that will be filled in. Says Christensen: "We hope to build an industrial park that will have access to deep water, railroad and highway."

Another new industrial park being developed by Utah, along with general contracting firm Haas & Haynie, is under construction in South San Francisco. These 340 acres of hill and marshland property, with space for 100 plants, will be the last close-in development in one of the state's greatest industrial centers.

Today, as Utah begins another year of wide-spread work, it has no intention of specializing in any of these lines—mining, industrial, commercial or residential. But by living up to its basic philosophy—diversification in types and areas of construction—the company looks to a future of tackling projects that will make full use of its resources of know-know, manpower and equipment.

RED LEAD PROTECTS New Jersey's mammoth Pulaski Skyway.

Red lead primer protects the steel upper portion of the huge University of Michigan Stadium.

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Among state highway officials red lead primers are overwhelmingly preferred for the protection of structural steel.

47 of the 48 states have red lead primer specifications: Out of a total of 88 primer specifications in *all* states, approximately 75 per cent are for red lead primers. Of these red lead specifications, nearly 75 per cent require a 100-per-cent red lead pigment content, and more than 85 per cent require that it be over 80 per cent red lead.

This preference for red lead primers is based on the years of satisfactory service they have provided. Modern research, too, makes it possible to formulate red lead primers for all conditions. They can be formulated to meet exacting requirements for quick drying, low cost, salt or fresh water, or other kinds of exposures and for almost any condition which an engineer must meet.

For the same reasons, red lead primers have become a standard for the protection of structural steel on all kinds of buildings, bridges, water tanks, gas holders and wherever structural steel is exposed to corrosive conditions.

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No "dry-starts" even on coldest mornings

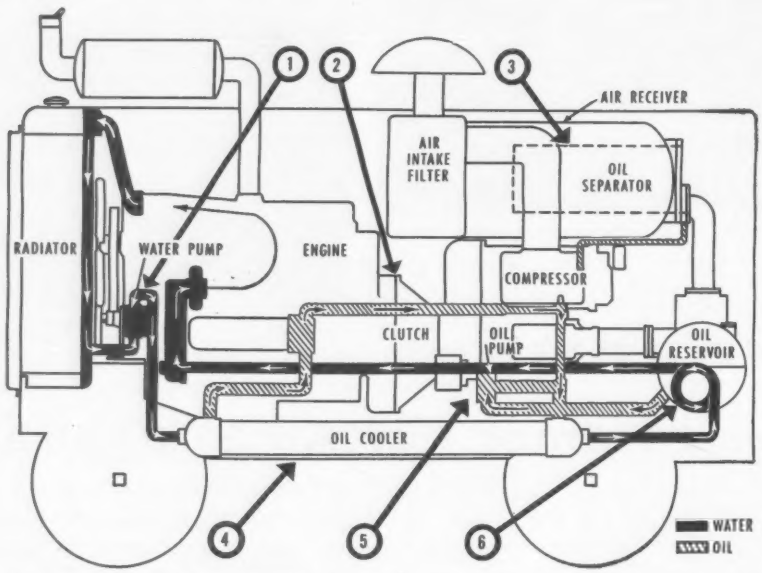
No overheating, even in desert-hot weather

Flow chart shows how Gardner-Denver water-oil cooling system operates

1 Water circulating system automatically provides constant operating temperature for both compressor and engine under all weather conditions—hot or cold.

2 Clutch eliminates cold-weather "dry-starts."

3 Effective oil separator minimizes oil consumption.



4 Circulating water cools compressor oil.

5 Oil pump provides positive flow of compressor oil.

6 Warm water from engine warms up compressor oil before clutch is engaged.

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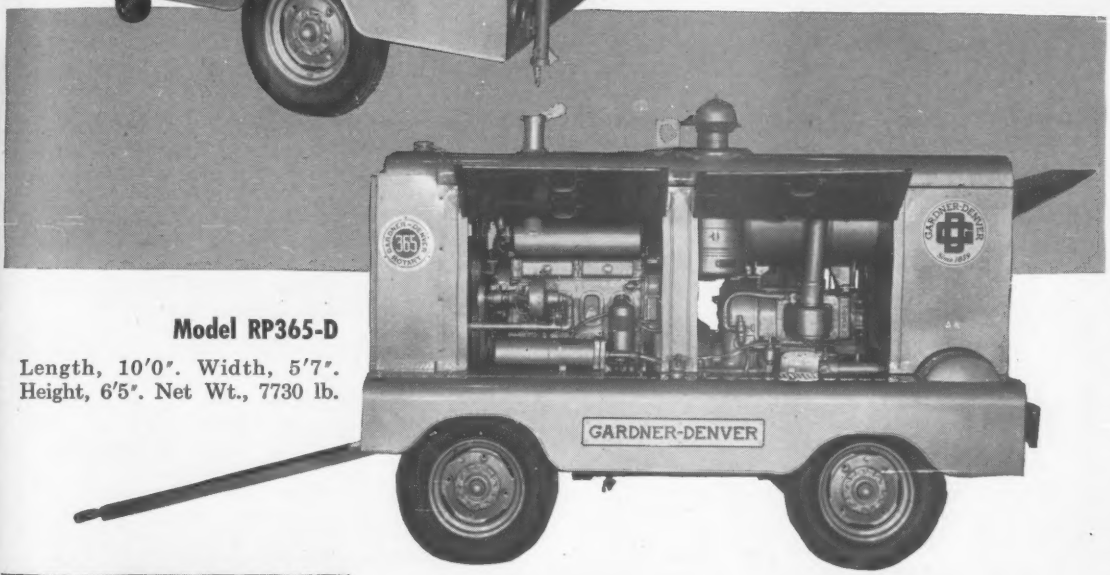
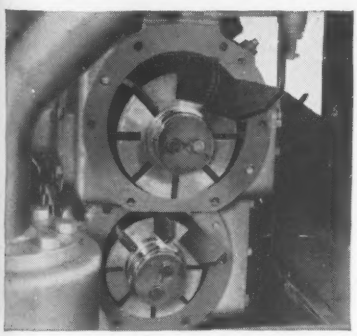


Model RP365-D

Length, 10′0″. Width, 5′7″. Height, 6′5″. Net Wt., 7730 lb.



Plus these field-proved features of the Gardner-Denver RP600 and RP900 portables

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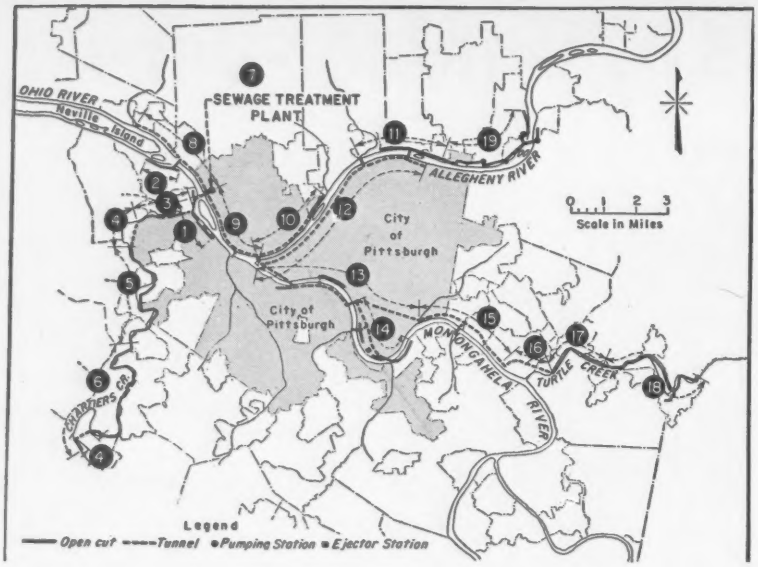


Pittsburgh's sewerage job, its key contracts . . . . . the contractors and the costs

1 Ohio River Interceptor by Mole Constructors, Inc., $1,965,350

2 Ohio River Interceptor by Harrison Construction Co., $306,955

3 Chartiers Creek Interceptor by Intercounty Construction Co., $1,120,000

4 Chartiers Creek Interceptor by Mole Constructors, Inc., $1,139,000

5 Chartiers Creek Interceptor by Ben Construction Co., $1,108,608

6 Chartiers Creek Interceptor by Ben Construction Co., $1,295,941

7 Sewage Treatment Plant: Foundation and substructures by James McHugh Constr. Co., $4,942,114; Pumps, motors and switchgear by Worthington Corp., $380,210; Mechanical equipment and piping, by Wayne Crouse, Inc., $2,518,544; River wall by Dravo Corp., $168,350; Incineration equipment by Combustion Engineering Co., $3,593,000; Superstructures by James McHugh Constr. Co., $2,836,038; Electrical work by Devlin Electric Construction, $1,940,859; Plumbing, heating and ventilating by Sauer, Inc., $592,350; Cleanup by Allegheny Contracting, $719,500

8 Ohio River Interceptor by Mole Constructors, Inc., $3,552,590

9 Ohio River Interceptor by Dravo Corp., $8,172,500

10 Allegheny River Interceptor by Harrison Construction Co., $4,229,951

11 Allegheny River Interceptor by Harrison Construction Co., $1,065,095

12 Allegheny River Interceptor by Dravo Corp., $10,565,500

13 Monongahela River Interceptor by B. Perini & Sons, Inc., $12,249,000

14 Monongahela River Interceptor by Mole Constructors, Inc., $4,233,980

15 Monongahela River Interceptor by Mole Constructors, Inc., $5,889,000

16 Turtle Creek Interceptor by Mole Constructors, Inc., $2,840,100

17 Turtle Creek Interceptor by United Foundation Corp., $1,060,971

18 Turtle Creek Interceptor by La Fera Contracting Co., $1,285,000

19 Upper Allegheny System Interceptors by Ben Construction Co., $599,911; Pumping and ejector stations by Fraser Engineering Co., $113,765; Appurtenances and ventilating by W. R. Davies Co., $39,873; Electrical work by Perry Electrical Co., $29,750; Plumbing by Stinson Kennedy Co., $5,700.

Record Job

The biggest current job of its kind was one year old last month. It is Pittsburgh's $100 million trunk sewer and treatment plant project, begun by the Allegheny County Sanitary Authority last March 1 after 10 years of study, planning and promoting.

There's more than mere size to this undertaking. It boasts many firsts:

• Never before have 70 separate communities been brought together in a comparable sewerage project. This took a real selling job.

• Never before has a $100 million bank-loan been arranged to get such a project started. It took 23 banks to put up this loan, which is now being repaid as revenue bonds are sold.

• Never before has an intercepting sewer project totalled 33 miles of tunnels. That's just a mile less than its 34 miles of interceptor in open cuts.

• Never has a plant been designed around the Laboon process of concentrating undigested sludge for incineration (ENR, Oct. 11, 1951, p. 21). John F. Laboon, the authority's executive director and chief engineer used a pilot plant to convince consultants Metcalf & Eddy that his novel treatment idea would work.

• And finally, there may never have been built as colorful a treatment plant of this size, for its buildings, tanks and stack will be faced with glazed brick in bright hues of red, blue, and yellow.

This is indeed a unique project.

• **Record-making contracts**—Last year at this time the Allegheny County project broke into the construction picture with $80 million worth of sewerage contracts.

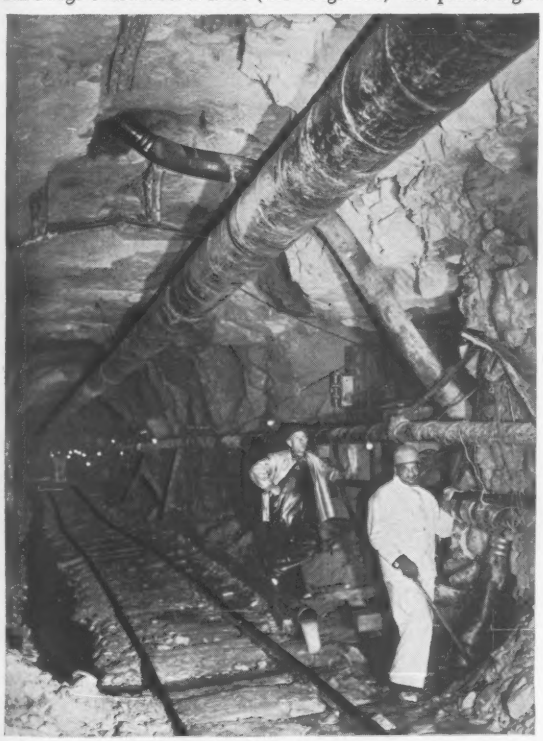
In addition to its dollar impact, the start of a 150 mgd treatment project there at the head of the Ohio River struck a tremendous blow for cleanup of that major interstate stream.

In the first six months of construction the contractors on this far-flung trunk sewer project (left) excavated 75,000 cu yd of earth and rock, placed some 36,000 ft of concrete pipe. To the present these figures have been boosted to 300,000 cu yd and 77,000 ft. And when they are done, there will have been excavated 1,200,000 cu yd; over 353,000 lin ft of 8 in. to 126 in. ID pipe will have been laid and 373 diversion, outlet and drop structures of novel design (ENR Mar. 5, 1953, p. 38) will have been built to complete the interceptor sewer system.

Tunneling from 15 shafts and 25 headings is approaching 35% of completion with about 1.8% per week the progress. Open cut work to total 34

What a Difference One Year Makes!

ALLEGHENY COUNTY'S SEWAGE WORKS takes shape on the Ohio River in Pittsburgh. Clockwise around the plant from left: steel frame is sludge incinerator; crane boom marks pump station excavation; primary treatment tanks; administration building; and sludge concentration tanks (left foreground)—the plant's big innovation. Sludge concentration and burning will replace usual digestion.



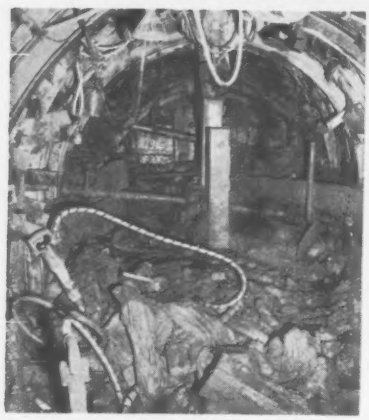
33 MILES OF TUNNEL. Vertical downshaft in roof, through which sewage will drop, is used as outlet for pumped groundwater.

DIFFICULT OPEN CUT. It's wet, slow work as interceptor hugging small but flashy stream progresses only 16 to 32 ft per day.

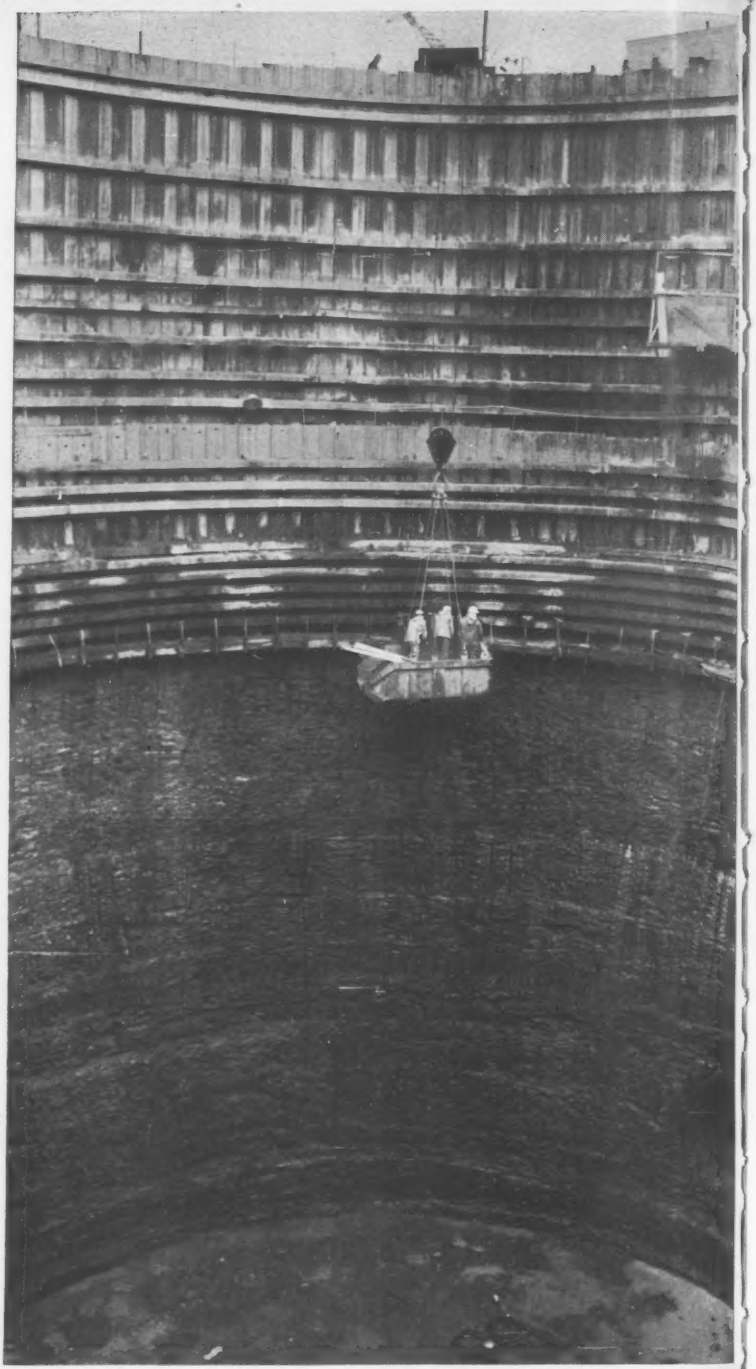
. . . 33 miles of tunnel

TUNNELING, EASY. Sandy shale is wet, but makes smooth, unsupported bore.

TUNNELING, DIFFICULT. Rock here calls for steel ribs, blocking and lagging.



TUNNELING, MISERABLE. Mixed face may soon require air: progress 3 ft per day.



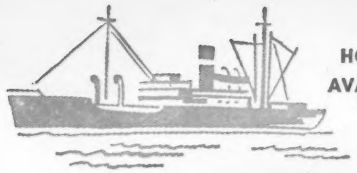
END OF THE LINE. The 67 mi interceptor system ends in this huge pumping station excavation (tunnel entrance, lower right). Hole has 100 ft dia, 120 ft depth—half in rock.

miles is some 45% complete with the weekly progress averaging 1.5%.

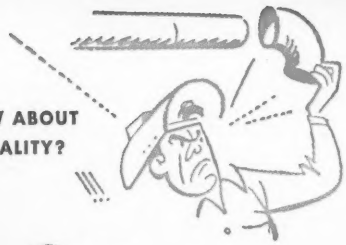
On the 48 acre site of the $16.7 million primary treatment plant, excavation to 120 ft below grade is completed for a 100-ft-diameter, 300 mgd pumping station (ENR Oct. 1, p. 53, p. 30). This riverside excavation was done in water-bearing soil within sheetpile through the first 60 ft down to rock. For the 60 ft of excavation in rock water was encountered at various elevations and below the bottom of the excavation, requiring some design modifications to provide against uplift loads totalling over 14 million lb.

Other plant construction has gone on apace, with the project geared to completion two years hence.

The project has been under guidance of John F. Laboon since its inception. His deputy chief engineer is Lawrence M. Gentleman. Richard J. Dougherty is chief construction engineer.



HOW ABOUT AVAILABILITY?

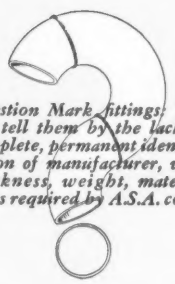


HOW ABOUT QUALITY?

HOW ABOUT IDENTIFICATION?

HOW ABOUT YOUR REPUTATION?

Why try to cut corners with Question-Mark* fittings?



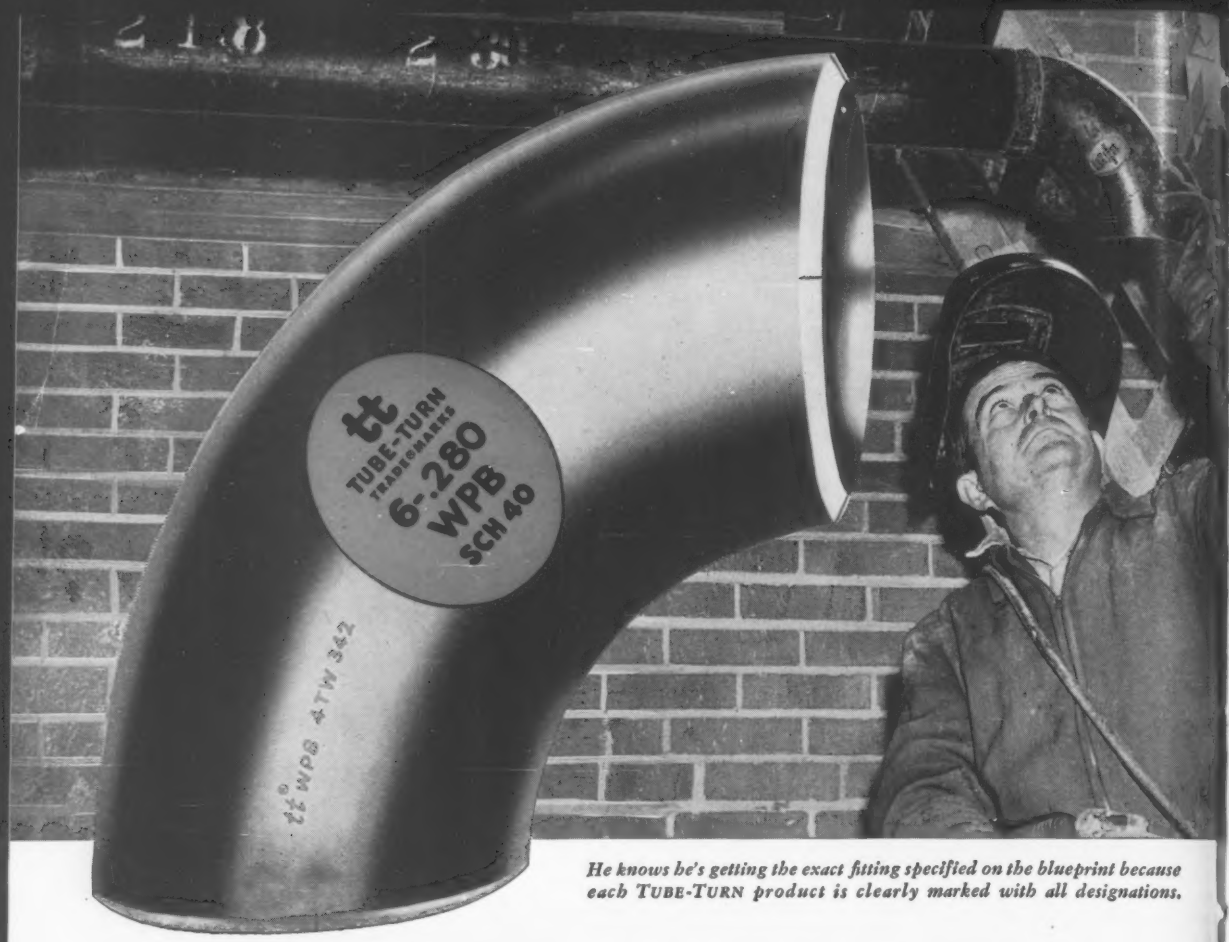
*Question Mark fittings: You can tell them by the lack of complete, permanent identification of manufacturer, wall thickness, weight, material ... as required by A.S.A. code.

Unknown welding fittings are as risky as unmarked turns on a busy highway. These blind spots in an expensive piping project cause slow-downs, confusion, trouble . . . waste time and money.

"Question Mark" fittings may look like a bargain on the price tag, but watch out for the after-costs . . . poor fit-up, impaired quality, questionable supply, lack of engineering service! Your reputation is at stake!

A message in the interests of top quality piping... by Tube Turns, Louisville, Kentucky.

HOW TO SAFEGUARD YOUR REPUTATION



He knows he's getting the exact fitting specified on the blueprint because each TUBE-TURN product is clearly marked with all designations.

Save manhours...avoid piping risks with known fittings

You save purchasing time, get prompt delivery, speed up installation, and help assure reliable piping performance when you specify TUBE-TURN* Welding Fittings and Flanges. They meet all American Standard and Safety Code requirements. Each product is permanently marked with complete size and material designation. Your nearby Tube Turns' distributor gives you prompt delivery from the complete-line stock, and makes available Tube Turns' unmatched engineering service.

You *know* your piping investment is safeguarded when you specify and buy Tube Turns' products.

Your nearby Tube Turns' Distributor meets your needs promptly from the complete line of more than 12,000 Tube Turns' stocked items.

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For a 415 ft. dia reservoir, on which bids were taken for alternate designs . . .

Hyperbolic Paraboloid Roof Is Cheaper

The hyperbolic paraboloid thin shell –which is finding increased use in construction–has been picked to roof a reservoir 415 ft in diameter. Fifty-two 46 ft 10 in. square concrete shells will provide a 110,000 sq ft cover for Argentine reservoir in Kansas City, Kan.

The job is being done for the Board of Public Utilities at a bid price $21,000 under the next lowest bid, which was based on a short-span precast channel slab design. Two other alternates that the winning firm, Eastmount Construction Co., Kansas City, Mo., outbid were conventional flat slab, and precast, prestressed long-span channel slabs on precast girders.

• **Fast job**–The contractor is averaging one completed shell a day using four movable complete forms constructed in two sections each. The characteristic double curve of the hyperbolic paraboloid is cast on forms made of straight units, a well-known advantage of this shape. The shells are supported at their centers (high points), which rise 7 ft 8 in. from the edges. Supports are cast-in-place concrete columns, with a spacing of 45 ft 10 in. each way.

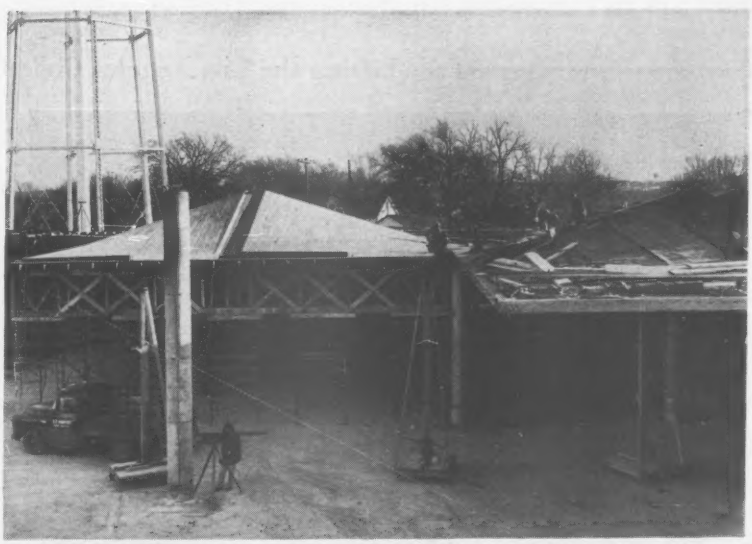
Edges of shells are dowelled to adjacent shells and to the slab-and-beam girdle that fills in between the round tank and the square shell.

• **Quick set**–Each shell has an average thickness of 4¾ in. and a minimum thickness of 3 in. in the major shell area.

Thirty-one cubic yards of concrete, with a specified strength of 4,000 psi at 28 days, go into each shell. Reinforcing steel averages 2.7 lb per sq ft.

High-early-strength cement and steam curing are used to permit winter construction. And with the further aid of insulation bats on the upper surface of the shells, a 3,200 psi test strength is obtained in less than 48 hours. At that strength, the contractor is allowed to remove forms, following reshoring along the shell edges.

Burns & McDonnell Engineering Co., Kansas City, Mo., is engineer for the job for which contract was awarded September 1956, and completion set for May, 1957.



MOVABLE FORMS are set on posts mounted on dollies, raised and lowered by hand winches. Tubular scaffolding supports forms during concrete placement.

Both steel and concrete beams are used in . . .

Novel Framing for a Courthouse

The newest addition to Los Angeles' progressively expanding Civic Center is a $20 million county courthouse on whose 800,000 sq ft of floors 109 court and hearings rooms will be located.

To accommodate such an array of special facilities, conventional office building floor plans would obviously not suffice, and the architects and engineers met the challenge with an interesting layout. Thus column spacing was made 25 ft in one direction and 32 ft in the other so that most of the rooms could be fitted into these large bays. Then, in order not to complicate the straightforward framing in the main building, appended wings were used to house the larger courtrooms needed for ceremonial and calendar purposes.

But it is in the beam and column details that the building departs from the usual design of such a simply framed steel structure. In the transverse direction the girders are connected to the columns by welding, providing continuity and thus minimum depth. The beams, which run in the longitudinal direction, are, however, connected by riveted details which are considered to be cheaper than welding where continuity it not necessary. And as a final innovation, the intermediate or fill-in beams in the bays are of reinforced concrete, which could be cast along with the floor slab and thus produce some construction economy.

The building is divided in two parts both functionally and structurally. The westernmost section houses 35 municipal courtrooms. It is built to a higher elevation starting at a higher foundation level. The eastern section includes 61 superior courtrooms on the 5 floors above street level. And this part is designed for future construction of two additional floors.

For earthquake resistance the two parts of the building are separated structurally. Double columns at the junction provide a 5 in. gap. Reason is that the different height and arrangement of the two parts would result in a damaging racking movement under earthquake loads.

• **Welded connections**—The entire structural concept of the building is concentrated on simplicity and repetitiveness of detail. The main part of the structure is 700 ft long and 125 ft wide. Four projecting wings are 75 ft wide by 125 ft long.

The uniform column spacing in the main structure immediately establishes a degree of structural simplicity. Many monumental buildings of this type have large spans interspersed with smaller spans.

A second point of structural simplicity is a uniform beam and girder depth. All of these members—both steel and concrete—are just 24 in. deep. That includes fireproofing for the steel members, which are almost all 18 in. wide-flange sections. To maintain this depth as well as to provide structural continuity in the transverse direction, the girder and column connections are welded. This permits use of a shallower section and simplifies the connection for depth purposes.

Girder seats are shop welded. The seat includes a vertical stiffener for shear resistance. The top plate is field welded. Bottom and top plates are so shaped as to permit all field welding to be done in the downhand position.

The beam-to-column connections, on the other hand, did not have to meet the continuity requirement. For that reason these connections are of a simple riveted design. It might seem confusing to mix both welding and riveting on one structure. But, the riveted connection is cheaper as well as simpler to install. And there are so many connections on the 6,000 tons of steel work in this structure that it proved economical to have both welding and riveting crews on the job. The steel was fabricated and erected by Bethlehem Pacific Coast Steel Corp. with fabrication being done in Bethlehem's Torrance and Alameda shops.

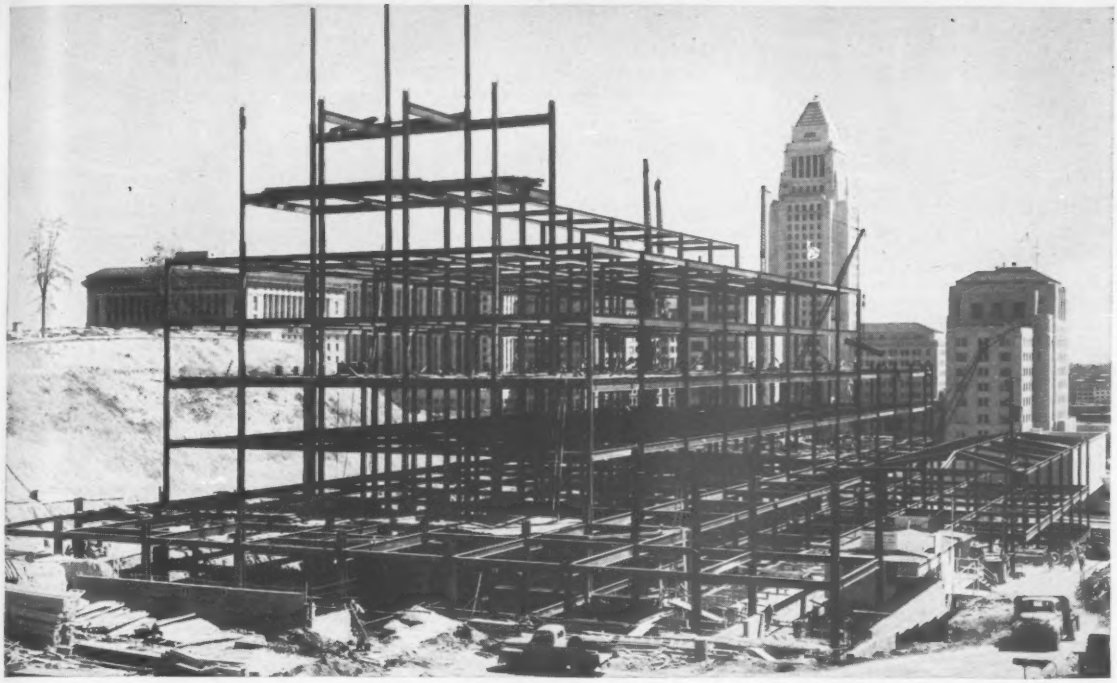
Intermediate beams framing into girders but not into columns are concrete. The thinking of the structural engineers—Brandow & Johnson—was

Face-Lifting the Los Angeles Civic Center

Los Angeles Civic Center is being drastically revised as a result of new construction.

Already under construction in addition to the courthouse (1) is a central heating plant (2) for county buildings. In the planning stage is a $20 million county administration building (3) and a new state office building (4). Recently completed are a police facilities building (5) and a public health building (6). Other landmarks include: the Los Angeles City Hall (7), State Office Building (8), Federal Building (9) and Hall of Justice (10). On the other side of the Hollywood Freeway can be seen the Los Angeles Union Depot (11) and the terminal annex post office building (12).

Whitehurse Aerial Surveys Photo



STEEL-FRAME COURTHOUSE for Los Angeles County has 800,000 sq ft of floor space, mostly courtrooms. Column spacing in main part of building is 32x25 ft. Larger bays are provided in wings to accommodate big courtrooms without obstructions.

that even if steel beams had been used, a concrete fireproofing would have been needed. And they concluded that the concrete beams could be cast at the same time as the 4 in. floor slab.

To provide continuity at the girders, the top steel in the 18x24 in. concrete beams passes over the top flange in the floor concrete. Bottom steel is run through holes punched in the web of the girder. There is no duct work or horizontal races of any kind in the structural floor slab. This slab is topped by a 4 in. lightweight concrete fill that includes all such items.

Earthquake resistance is designed into the structural frame by use of concrete shear walls. In the longitudinal direction, the exterior walls serve for this purpose. In the transverse direction, solid walls are provided every other bay. These walls span most of two bays near the exterior leaving the center bay clear for corridors, etc.

A special study was made on the structure to minimize distortions that might result from earthquake forces. Design practice in California and other areas subject to temblors has developed techniques that protect the structural integrity of a building. But in recent earthquake history in southern California substantial monetary loss has resulted from distortion that caused plaster cracks and the like but did not result in structural damage. The frame was analyzed and rigidities were varied to minimize this distortion. This special study was conducted in cooperation with Clarence Derrick, consulting structural engineer for the architects.

• **Standard court layout**—Courtroom layout is standardized. Taking the superior courts as an example, each courtroom is contained in a 32x50-ft space —spanning one bay in the longitudinal direction and two bays in the transverse direction. The courts include all the normal facilities like jury box and witness stand, as well as space for 46 spectators. To minimize distraction from case procedure, all courtrooms are inside rooms with no windows. With each courtroom is provided a judges' chamber, hallway, jury room, etc.

Each courtroom has individually controlled air conditioning. All air-conditioning ductwork includes sound traps to reduce noise level. And the sound traps prevent people in the courtroom overhearing conversations from the jury room or the judges' chamber.

An earlier design had the superior courts and the municipal courts in separate buildings. And the courtrooms were substantially larger. Bidding on these buildings revealed the cost would be in excess of $26 million. By combining the two functions in one building and by reducing the courtroom size, cost of the project was reduced to $20 million. This is not to say that the courtroom size finally adopted is inadequate or substandard. As has been previously pointed out, some larger courts are provided for major and ceremonial functions. By providing these larger courts, it is possible to have less spectator space in the ordinary courtrooms.

The designers of the building economized wherever possible and practical, but for such a monumental building, it was also necessary to keep the structure in character. Extra fine materials thus were used in finishing work, although here too the architects were very selective. For example, all courtrooms are oak-paneled at a total cost of nearly $3 million. This material is believed necessary to maintain dignity of the court proceedings and establish the proper atmosphere.

On the exterior, granite facing was used for the first-floor level, but above that ceramic veneer is provided. The fenestration is all extruded aluminum. These materials were selected for durability and dignity.

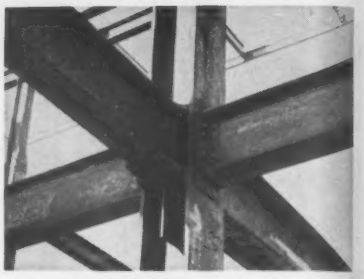
In connection with the granite paneling, special precautions were taken to maintain the integrity of the joints. The granite slabs were placed on lead setting blocks in a mortar bed. Joints were filled with mortar and the slabs were grouted behind. After joints were raked, the grout was covered with a liquid plastic and staining the finish.

• **Credits**—Architects for the project include a combination of J. E. Stanton,

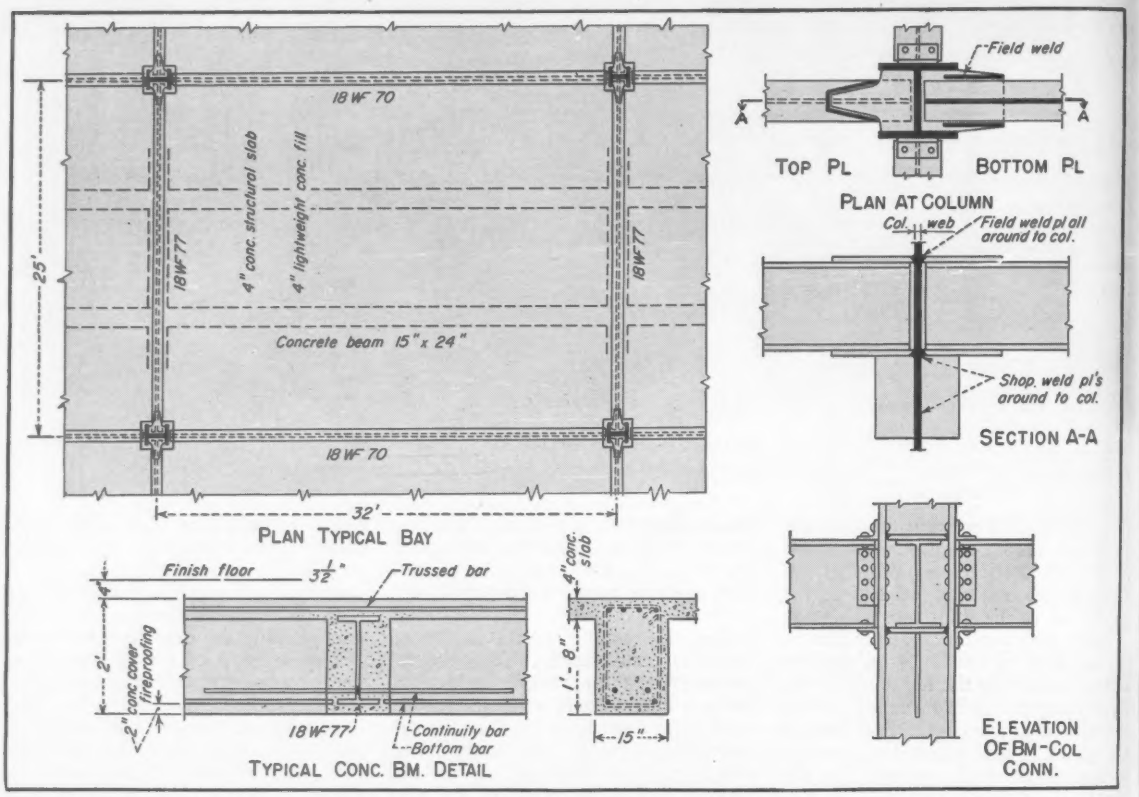
. . . Framing consists of steel and concrete beams

Paul R. Williams, Adrian Wilson, and Austin, Field & Fry. Project coordinator for the architectural combination is William F. Stockwell, now a partner with J. E. Stanton. The structure was designed by Brandow & Johnston, Los Angeles structural engineers. Mechanical and electrical design was by Ralph E. Phillips.

General contractor holding a $19,647,000 contract is Gust K. Newberg, of Chicago. Site clearing and excavation as well as foundation work were handled under separate contracts.

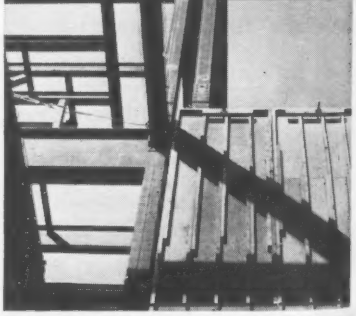


WELDING PROVIDES CONTINUITY for girder-to-column connection. Beam connections are riveted.



TYPICAL DETAILS provide for downhand field welding of girder seat at columns; holes in girder to pass concrete beam bars.

FLOOR FORMWORK includes intermediate beams shown in drawing above and floor slab, which are concreted at the same time.



DOUBLE COLUMNS allow building sections to move independently.

Berger Transit narrows problems on world's widest vehicular tunnel

Deflections. Angles. Curves. Each construction job contributes its share. But the 13½ million dollar tunnel section of Boston's new J. F. Fitzgerald Expressway had them in spectacular abundance. And when V. Barletta Co. of Roslindale, Mass., was awarded this big contract, they knew that the instrument needed to see them through the job would have to be tops in accuracy and dependability. That's why they chose the BERGER 6¼" Bronze Transit.

Here's an idea of some of the problems they met:

On the approach to the slab area, some 20,000 yards of concrete—over 90 separate pours—were held to within 1/100th of a foot.

Where the approach goes underground, the base lines of the steel structure are on a series of curves. These base lines—and all points on both sides of the structure—were run 15 to 20 times to assure absolute accuracy. Anchor bolts were set within 1/16". Pre-cut steel beams had to fit exactly. They did.

Problems of laying out, alignment, elevation, leveling—the BERGER Transit was given a complete workout, day in and day out.

Said Barletta Co. engineers: "It does the job—and then some. Graduations stand out clearly for easy reading. Telescope focuses quickly over long and short distances—from 100 to 500 feet in only half a screw turn. Easy to center over a point from 15 to 20 ft. height. No problem picking up targets—even at 1200 feet."

Where accuracy is at stake, leading engineers and construction men buy BERGER. Put yourself behind a BERGER—and see why. C. L. BERGER & SONS, INC., 51 Williams St., Boston 19, Mass.

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ENGINEERING AND SURVEYING INSTRUMENTS...SINCE 1871

400 tph with 100% crushing of wet limestone sets Turnpike record

● *"I'm a Texan, I'd prefer a Stetson, and my hat size is 7¼. Make sure you're ready to pay off when we hit 100,000 tons because you're going to be a long way behind."*

Thus did W. E. Thomas show his confidence in the PIONEER combination Rock Plant operated by him and his father . . . for he was betting with a competitor whose big plant had, up to then, been regarded one of the most efficient on the Kansas Turnpike.

Won Bet. Not very many weeks later, when Thomas had passed the 100,000 ton mark to win his bet, his competitor had barely turned out 65,000 tons.

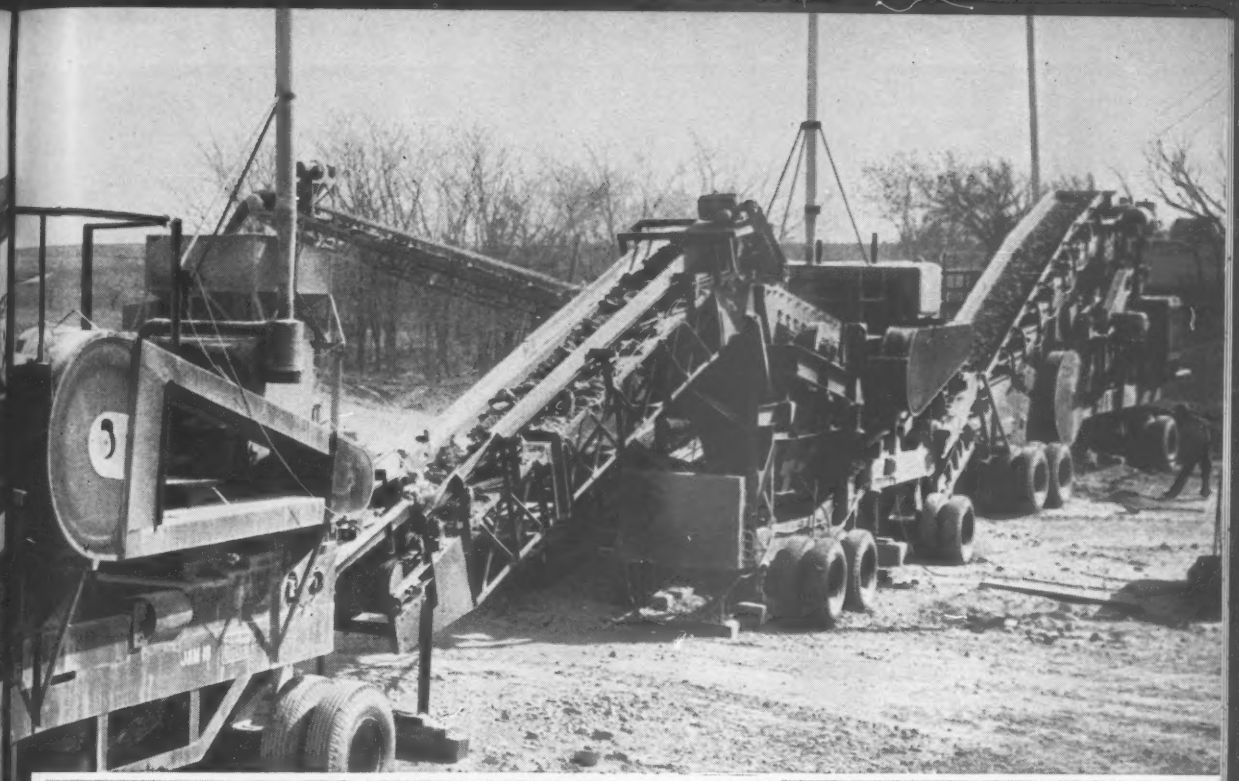
The record breaking plant was operated by the two Thomases for two prominent southern contractors. Bidding by joint venture, T. L. James Co. of Ruston, Louisiana and R. W. McKinney of Nacogdoches, Texas had won the job of supplying 580,000 tons of specification aggregates for a 10 mile stretch of the 4-lane Kansas Turnpike south of Wichita.

Moved Plant from Ohio. The James-McKinney plant includes a portable PIONEER 153 PRL Primary with a 30' portable apron feeder, and a portable PIONEER 154 VE Secondary Plant . . . both of which had been moved 1000 miles from their previous location on the Ohio Turnpike.

Kansas Conditions Create Problems. But the solid limestone found in Kansas offered considerably more difficulties than those encountered in Ohio. It was much higher in moisture and required 100% crushing and sizing. At the suggestion of their PIONEER Distributor, Thomas overcame these problems by adding a new portable PIONEER 120 JSE Intermediate Plant between Primary and Secondary Plants. He also made several modifications to speed the operation and cope with the excessive moisture.

Finishes Ahead of Schedule. In completing its job ahead of schedule, the James-McKinney plant established what is believed to be the Kansas Turnpike crushing record . . . and certainly one of the top crushing records ever set in damp midwestern limestone. Operating at a 400 tph. clip, this remarkable record was obtained despite the late winter and wet spring.

Here, indeed, is another example of the PIONEER EDGE . . . and the advantage it can give an experienced contractor.



ABOVE: 30' Portable Apron Feeder, 42" wide, supplies Primary Rock Plant. Big 3042 jaw crusher easily handled pit run limestone on Kansas Turnpike job. A 175 hp. diesel furnished power.

BELOW: Secondary Plant includes 36" feed conveyor, 5424 roll crusher, 4' x 12' 3½-deck screen. PIONEER's exclusive Split Feed principle gives twice the effective screen area and more precise control of gradation.

ABOVE: Intermediate Plant has 4' x 8' 2-deck Mesabi-type vibrating screen which routes 5" plus material through 1536 jaw crusher, 2" to 5" material to Secondary Plant, and sends 2 minus material to surge hopper. Screen has spring suspension, rather than conventional rigid mounting, to avoid frame vibration which might cause stresses and breakage.

For further information on this or other Portable PIONEER Plants, see your PIONEER Distributor or write Pioneer Engineering, Minneapolis 14, Minnesota.

Pioneer®
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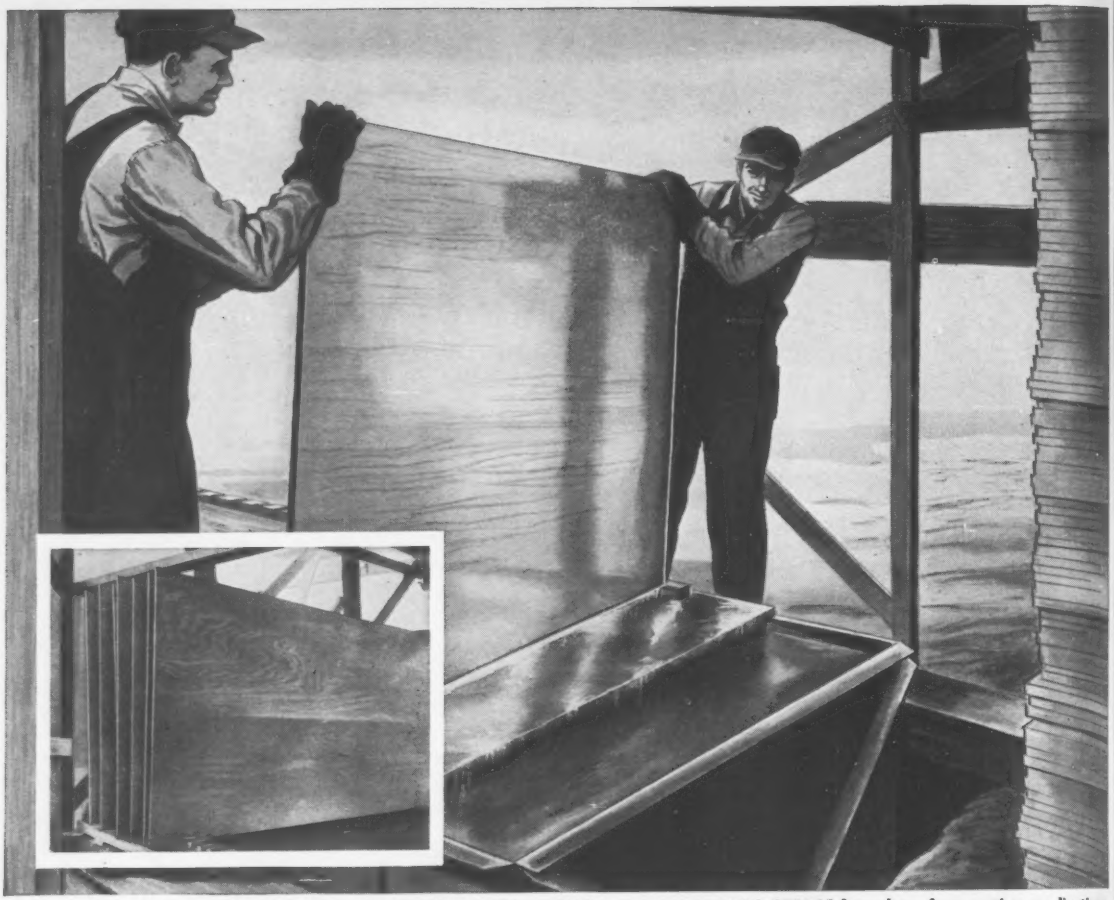
DIVISION OF POOR & COMPANY, INC.



A. C. Horn dip tank illustrated is available to contractors at NO CHARGE for volume form-coating applications.

You'll save 10¢ per sq. ft. by form-coating with FORMFILM

That's right! Savings add up to 10¢ per sq. ft. (figure based on 50,000 sq. ft. area of poured concrete) when you apply FORMFILM, the fast-drying coating for plywood forms.

Here's how FORMFILM permits this saving—

First, FORMFILM strips clean and smooth. It leaves no grain marks or oil stains. As a result, you eliminate 85% of normal concrete rubbing and cleaning. Second, FORMFILM provides a smooth, dense surface that greatly increases paint coverage. You save as much as 25% in painting costs on material and labor. Third, FORMFILM is also a plywood preservative—resistant to water, moisture, abrasion and alkalies. There's no need to re-coat between pourings. In fact, *you get up to 10 or more re-uses from each plywood form!*

FORMFILM may be applied by brush, roller, spray or dipping methods. Write today for more facts on FORMFILM. Or, better still, ask your A. C. Horn representative for a free demonstration. Just write to Dept. H42-49.

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Two-story frame requires less steel when . . .

Plastic Design Is Used Successfully

Prof. D. T. Wright
Queen's University
Kingston, Ont.

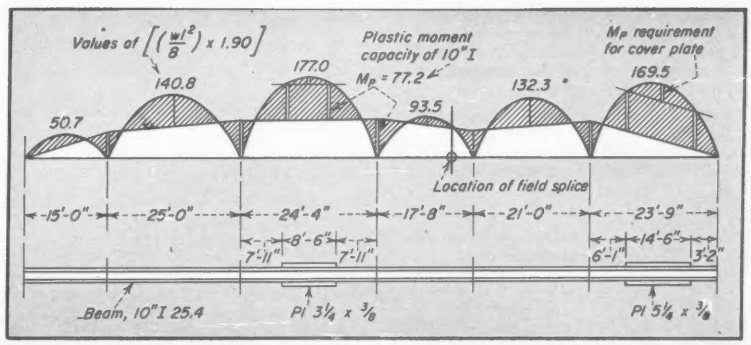
What is believed to be the first plastically designed steel structure in North America has been completed in Kingston, Ont. The building, though relatively small, is of interest because of the design and the unconventional framing adopted. Appreciable weight savings were effected with no particular increases in fabrication or erection costs.

The structure is a two-story office building, rectangular in plan and measuring 126 x 74 ft. Because of interior requirements, column spacings are somewhat irregular. Beam spans vary from 15 to 25 ft.

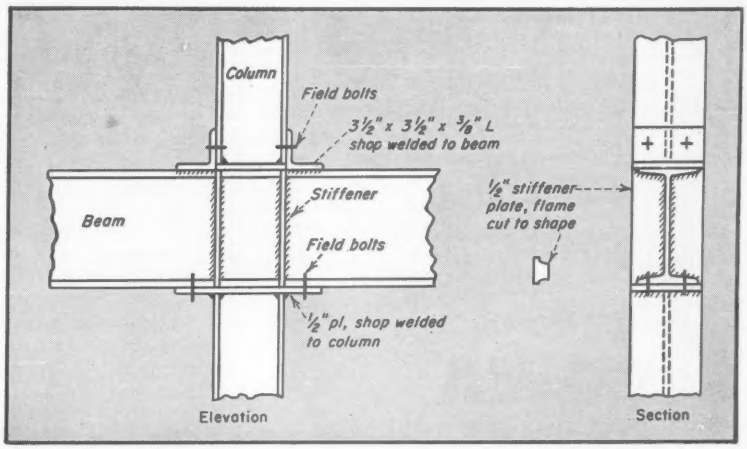
An original structural design called for a conventional simple steel framework. With the general shortage of steel—and particularly the severe shortage of heavier rolled sections—it became evident that construction could not proceed at the time desired if the original design were used.

Thus, some alternative was required, and a plastic design was chosen. This enabled construction to proceed with available lighter I-sections. It should be noted that under the National Building Code of Canada (1953 edition), the plastic design of steel structures is permitted as a "type of design based on sound engineering principles."

• **Continuity required**—Plastic design is naturally associated with fully continuous steel-framed structures, since only



MOMENT DIAGRAM shows locations in continuous beams where full bending capacity of 10 in. I-beam is developed and beyond which cover plates are needed.



COLUMNS terminate at the continuous beams, which are stiffened to support them.

In hydrants, too,
it's important to have

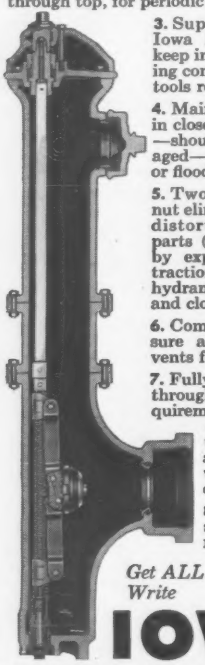
Unobstructed flow

SINCE 1906

Look at a cutaway view before you buy any hydrant! You'll be surprised how few provide an absolutely unobstructed waterway! And *no one* but Iowa offers you *all* this and much more—

1. Provides full and unobstructed waterway for maximum flow from main to nozzle.

2. All internal working parts removable through top, for periodic inspection.



3. Superintendents find Iowa hydrants easy to keep in "tip-top" operating condition—no special tools required.

4. Main valve holds tight in closed position so that—should hydrant be damaged—no loss of water, or flooding, will occur.

5. Two-piece operating nut eliminates binding or distortion of working parts (sometimes caused by expansion and contraction) — makes Iowa hydrants easy to open and close at all times.

6. Complete drainage by sure acting drain, prevents freezing.

7. Fully bronze mounted throughout—meet all requirements of A.W.W.A. —have proved their ruggedness and reliability to waterworks men everywhere.

8. Available with any type of connection.

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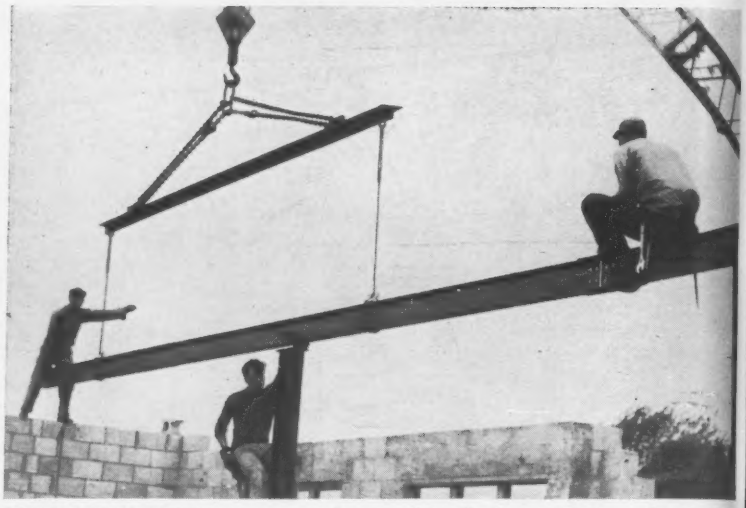
. . . Plastic design saves steel



CONTINUOUS BEAM spans across columns and is spliced near inflection points in short spans, where stresses are low.

with continuity can advantage be taken of plastic theory (ENR April 4, p. 38).

In the present case, no true frame action was required, since the building is low, more or less square and has interior masonry partitions to resist transverse loads.

• **Framing is different**—To take advantage of plastic design, the main beams had of course to be continuous; but for simple erection, fully rigid field connections had to be avoided. So the beams were, in fact, made continuous for their full length of 126 ft. One field splice only was used in each beam—carefully located at a section (in one of the shorter spans) where full continuity was not required.

The columns that were not needed to carry any moment were then framed between the beams with simple connections. The arrangement is diametrically opposite to usual practice, where columns are erected in two or three-story lengths.

The bents were spaced 16 ft c-c, with floors either of timber or open-web joist and concrete slab construction.

• **Loads and safety factor**—Design live loads were 40 psf (snow) on the roof and 50 and 100 psf, respectively, on the second and ground floors. The load safety factor used was 1.9—taken as that corresponding to the safety factor provided by conventional simple-beam design. (Determined as the product of the safety factor on yield, 33/20 = 1.65, and the average shape factor 1.15).

A sketch shows for a typical beam the simple beam (statically determinate) bending moments for each span, with negative moments superimposed.

• **Sizing the beams**—With varying span lengths, it was not economical to employ a section of uniform resistance throughout the length of each beam; yet it was not convenient to vary the size of sections. Instead, a section was chosen sufficient for all but one or two spans, and then cover plates were added in those spans. The result is that at most critical sections members are working to full capacity.

Field splices were placed near points of contraflexure of short spans, where moment requirements are not severe. The splices had to be able to carry only 50% of the fully plastic resistance of a section, and web and flange cover plates secured with high-tensile bolts were adequate.

Beam-column connections were made as shown in another sketch.

A plate, welded to the top of the first-story column, served as a seat on which the beam was bolted. Stiffeners, welded to the beam, carried the column thrust. Since the flange-width of the I-beams was less than that of the wide-flange columns, these beam stiffeners actually protruded beyond the flanges of the beams (as shown). Finally, a pair of angles welded to the top flange of the beam were used to fasten the bottom end of the upper column.

All of the welded connections were made in the shop, and high-strength bolts were employed in making the field connections.

• **Simple, quick erection**—The steel frame was erected without special difficulty, in spite of the long (63 ft) beams, which had to be trucked in early in the morning to avoid heavy traffic.

(Continued on p. 62)

ON THE NEWS FRONT WITH STRUCTURAL STEEL

North Street Elementary School, Greenwich, Conn., was designed by Sherwood, Mills & Smith, architects, Stamford, Conn. Contractor: A. Barbaresi & Son, Mt. Vernon, N. Y. Steel fabricators: County Iron Works, Port Chester, N. Y. Structural Engineer: Seelye, Stevenson, Valve and Knecht, New York City.

New Look for Schools . . . on East and West Coasts

These two schools, the Woodway School near Seattle, Wash., and the North Street School in Greenwich, Conn., represent the newest trends and concepts in modern school design. Both are one-story structures, set in attractively landscaped grounds; both have functional, well-lighted classrooms; both were built for beauty and permanence.

In these, as in so many other new schools going up around the country, the architects relied on Bethlehem structural steel to provide a rugged framework for the buildings. Strong, fire-resistant and adaptable to a wide variety of architectural forms, structural steel has an important place in the designing of the modern school.

Woodway Elementary School, near Edmonds, Wash., north of Seattle, was designed by Waldron and Dietz, architects of Seattle. General contractors: Venne Beauchamp, Everett, Wash. and O. E. Turnquist Construction Co., Seattle. Steel fabricators: Arcweld Manufacturing Co. and United Iron Works, both of Seattle.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

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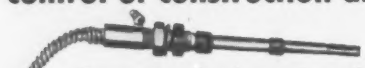
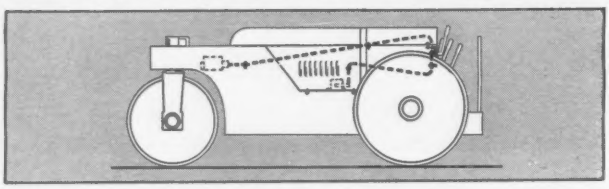
TRU-LAY *PUSH*-PULLS

give trouble-free, lifetime service for remote control of construction and quarrying equipment

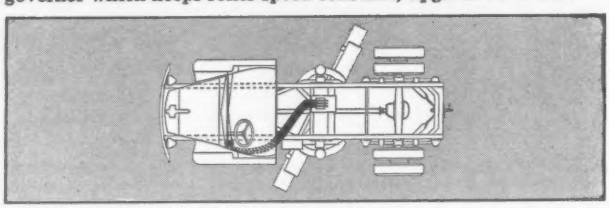


Operators of Construction or Quarrying Equipment can be certain of maintenance-free service from TRU-LAY PUSH-PULL CONTROLS because of their precision manufacture—rugged construction—lubrication for life of the inner, working member at the factory—complete sealing of the entire unit (a vitally important factor in tough, outdoor operations) against dust, dirt or moisture.

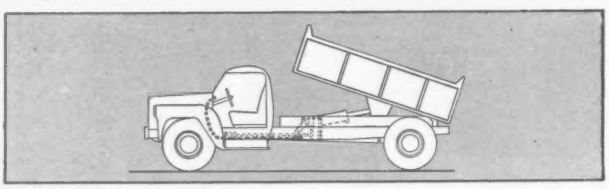
We have never heard of a TRU-LAY FLEXIBLE PUSH-PULL CONTROL *wearing out in normal service.* Examples of heavy-duty applications are shown below. Users of such equipment benefit from simplified equipment design and improved operation.



• Shown here is a tandem roller where two different PUSH-PULL cables are used to facilitate operation. One cable, 156" long, is capable of a 2" stroke to operate the hydraulic steering valve at the front of roller. The second, shorter cable operates tail shaft governor which keeps roller speed constant, upgrade or down.



• More room in the cab of this snow plow was one of the advantages of installing PUSH-PULL cables. This permitted the hydraulic valve to be located at a more convenient point in the chassis. "There are so many things you can do with these flexible cables compared to the old fixed installations," the manufacturer told us.



• Raising and lowering of the dump body on a famous line of hydraulic dump trucks is via TRU-LAY PUSH-PULL cables. With PUSH-PULLS this merely entails the pulling of a button on the dash. The installation did away with cut-up floor boards and levers in the truck cab. TRU-LAY PUSH-PULLS brought easier installation, more convenience and less maintenance.

***Look for PUSH-PULLS** on the heavy equipment you buy. It will be easier to operate and less costly to maintain. For complete information we'll be glad to send you this DATA FILE . . .*

ACCO

AUTOMOTIVE and AIRCRAFT DIVISION
AMERICAN CHAIN & CABLE

Push-Pull DATA FILE

TRADE MARK

601-F Stephenson Bldg., Detroit 2
2216-F South Garfield Ave., Los Angeles 22 • 929-F Connecticut Ave., Bridgeport 2, Conn.

. . . Plastic design of frame

The beams, particularly the 10 in. I-beams, were quite limber in these lengths, and though the erection foreman was inclined to be very critical of this, the beams were picked up and placed with little delay.

• **Weight saved**—A comparison of plastic design with a conventional simple-beam elastic design shows that there was an appreciable saving in steel in spite of the overdesign of the shorter spans.

Weight of the beams for an elastic design would have been 32.8 tons; weight used was onyl 25.5 tons, a saving of 22%. If the weight of columns and bracing were added, the percentage saving would be reduced, since these members would have been the same in any case.

It would be of interest, and perhaps more pertinent, to compare the weight of the plastic design with the weight of an elastic design for a comparable continuous-beam structure. Time has not been taken to do this completely. Check calculations indicate, however, that the continuous elastic design might save perhaps a quarter of the material saved with the plastic design.

• **Deflection not a problem**—Since plastic design always leads to lighter sections, the question of elastic stiffness or of deflections under working loads is usually raised. In plastic design, the extra stiffness due to the restraints offered by continuity generally more than compensates for the decrease in member size.

Deflections were checked for several members in this building, and it was found that for interior spans, deflections were reduced 25% or more with the plastic design. For end spans, where the beam is continuous at only one end, the plastic design led to deflections up to 25% greater than those that would have been obtained with an elastic design. The total deflections were not large enough, however, to be of concern.

In conclusion then, it appears from this experience that plastic design can be applied to advantage, with savings in steel weight and design time. This conclusion is in accord with experience in England, where over 200 structures have been designed by the plastic theory.

L. V. Gallaher was the architect for the building, which is owned by Cleland and Flindall Ltd., of Kingston. The general contractor was the Oldford Construction Co. Ltd. of Kingston. The steel was fabricated and erected by I. Cohen and Co., Ltd., of Kingston, and Leeds Bridge and Iron Ltd., of Ganonoque.

Solving "parking" problems for river traffic

Our natural traffic arteries, the rivers, today bustle with increasing transportation of all kinds of bulk materials. Efficient "parking" facilities, such as this coal loading dock on the Ohio River are needed to load and unload barges at terminal points. Made up of a series of steel sheet pile cells, filled with sand and gravel and capped with concrete, these docks are low in first cost and need little maintenance. The number, diameter and height of cells is determined by dock size and location as well as variations in river level. Two or three or dozens may be used. Large installations, equipped with barge shifting and unloading machinery, have been constructed to handle as many as sixty barges.

More than 100 docks have been built in the last eight years, another example of Dravo's unique construction experience "in and around water." For more information on docks or any of the products and services listed below, write to DRAVO CORPORATION, PITTSBURGH 25, PENNSYLVANIA.

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Blast furnace blowers • boiler & power plants • bridge sub-structures • cab conditioners • docks & unloaders • dredging • fabricated piping

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This 9-yd. "hustler" in your fleet...

Working alone...or slugging it out with your production fleet...this improved Model D Tournapull® earns extra profits on any size job

Advertisement

Time a "D": It loads usually in less than a minute . . . hauls often in 4th gear at 20 mph . . . spreads on the run in about 15 seconds! This "hustle" means production . . . and production to you is money in the bank.

ll boost production – cut costs – increase your bank balance

When preparing to move-in on a project, there usually are many odd jobs to do before your big production earthmovers can begin to pay off. These preliminaries may include the building of access roads, detours, drainage ditches, a few cut-and-fill excavations, and other small-yardage assignments. You can do this work with bulldozer, grader, crawler-scrapers or big production scraper . . . but why triple your cost when one hustling 9-yard D Tournapull can do it for you at a big saving in time, manpower, and money?

You make your biggest profit with D Tournapull on odd jobs where it doesn't pay to use 18 to 27-yard scrapers. Use the 9-yard "D" on such jobs as cutting drainage ditches to dry out soft spots . . . for filling-in and shaping shoulders . . . stripping sod and hauling black dirt . . . leveling grade . . . filling washouts . . . building detours . . . and doing clean-up after the big production show is over, and your fleet is moved to a new location.

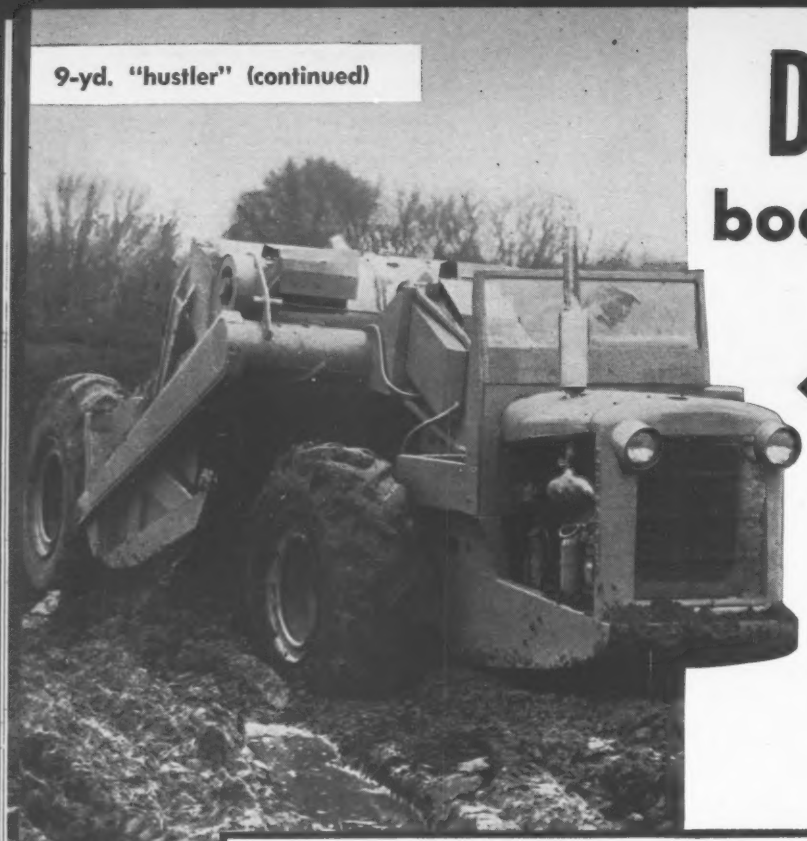
And when your fleet moves in for volume earthmoving, your 9-yard D Tournapull can take its place profitably in production cycles. Figured on an ownership-operating cost basis, you'll find the "D" a sound investment on every work application.

Why is D Tournapull your best bet for these do-it-all assignments? The answer to this question was written years ago when LeTourneau-Westinghouse pioneered rubber-tired earthmovers. L-W engineers learned from experience in the field that pioneer and clean-up work was costly when handled by big machines. To correct this situation, the "D" size Tournapull was designed and engineered as a multi-purpose tool to fill this specific need. Since its introduction, some 8 years ago, the "D" has been continually improved. Today, this machine is generally accepted all over the world as the fastest, most maneuverable, and most profitable "handyman" dirt-mover tool in any production fleet, large or small.

There's a bonus in "D's" versatility. Put it to work building driveways or highways . . . it is small enough to work efficiently in tight spots; big enough to turn out profitable production on long hauls, or in pusher fleets.

turn page for more on D 'Pull

9-yd. "hustler" (continued)



D Tournapul
boost productio

Gets the work done . . . whether going is hard or soft

No need to by-pass mud, muck, sand, or other tough going that bogs down ordinary rigs. D Tournapull, with its exclusive power-transfer differential, automatically transfers power to the wheel having firmest footing, and pulls on through for uninterrupted production *and profit.*

Wheel spinning — and its resulting tire wear — is minimized, and the duck-walking of independent manual wheel-braking is eliminated.

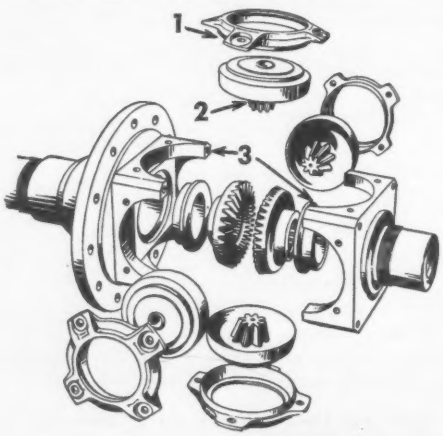
You have steady working speeds, in all working conditions, with the hustling, hard-working "D".

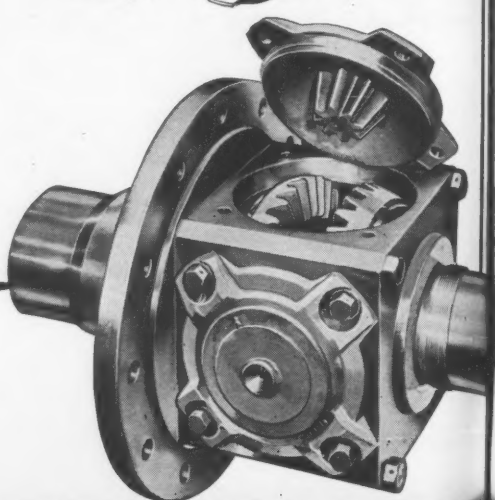
How this exclusive differential cuts costs — boosts production

Look at the photo of this exclusive, patented LeTourneau-Westinghouse power-transfer differential. Then look at the component drawing which shows the parts "exploded" for close examination. Here's how it works:

When one wheel starts to slip, a pinion (2) rotates within the housing (3) and is forced out against the large friction bushing (1). This restricts the speed of pinion rotation. As speed of rotation is reduced, a proportion of the applied engine power is automatically diverted to the opposite drive-axle. The greater the wheel slippage, the greater the restriction, and the greater the portion of power transferred to the wheel on firmest footing.

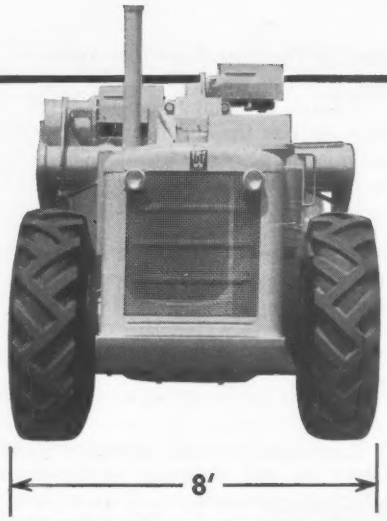
Power transfer is effected gradually. The opposing wheel-spin caused by sudden independent manual wheel-braking is eliminated. You go through soft, spongy spots with smooth, even power application. You eliminate needless delays, reduce costly downtime, get steady production and *put bigger earnings in the bank!*





dvantages cut costs

Study these advanced design features of D Tournapull . . . the result of a policy of continuous improvement for all LeTourneau-Westinghouse machines. These advantages add up to *more work done, at lowest cost*...less downtime, bigger profits for owners.

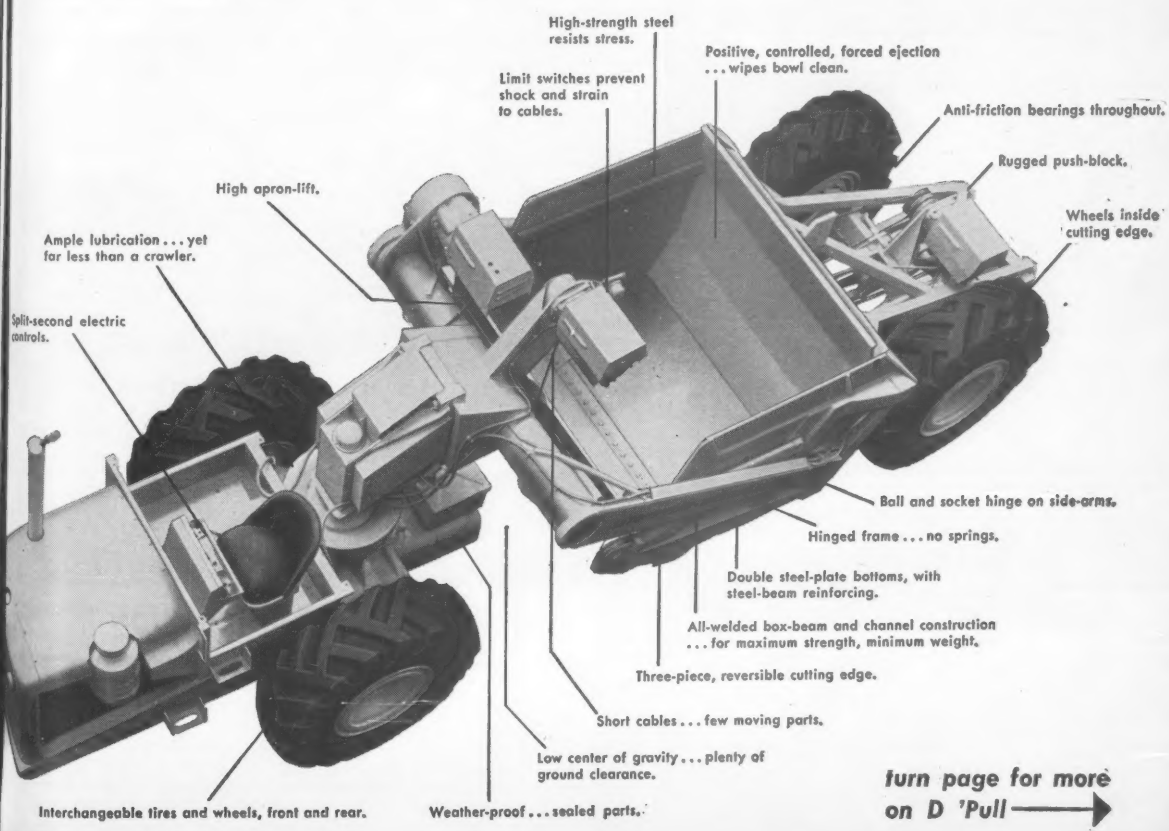


Improved design permits roading without permit

The D Tournapull-Scraper is now only 8 feet wide . . . with axle-load under 9 tons . . . to meet legal width and weight limitations.

You can road this machine without permit . . . maneuver it easily through crowded traffic, over narrow bridges . . . go anywhere, under its own power, at speeds to 29.5 mph.

Compare the "D" with any other tool of comparable size and capacity! Watch it work . . . and you'll see why this machine belongs on your earthmoving team.


High-strength steel resists stress.
Positive, controlled, forced ejection . . . wipes bowl clean.
Limit switches prevent shock and strain to cables.
Anti-friction bearings throughout.
Rugged push-block.
High apron-lift.
Wheels inside cutting edge.
Ample lubrication . . . yet far less than a crawler.
Split-second electric controls.
Ball and socket hinge on side-arms.
Hinged frame . . . no springs.
Double steel-plate bottoms, with steel-beam reinforcing.
All-welded box-beam and channel construction . . . for maximum strength, minimum weight.
Three-piece, reversible cutting edge.
Short cables . . . few moving parts.
Low center of gravity . . . plenty of ground clearance.
Interchangeable tires and wheels, front and rear.
Weather-proof . . . sealed parts.

turn page for more on D 'Pull →

9-yd. "hustler" (continued)

Ditching

Backfilling

Grading

Clean-up

Maintenance

Production

Balanced design and the ability to work

The modern D Tournapull reflects years of tough testing on all types of work, in all kinds of working conditions. There's nothing "experimental" about this machine. It has the built-in speed, capacity, and easy loading characteristics that make it a profit-producer anywhere, any time.

More "D's" are in operation all over the world than all other scrapers in its size and price class. And the demand for D Tournapulls grows stronger year after year, proving conclusively that this machine justifies its leadership through low-cost operation and profitable performance.

Today's D Tournapull is built strong, of strong materials, all-welded, and designed to reduce useless deadweight to a bare minimum. Weight distribution concentrates the unit's load on big drive-wheels and big tires of maximum traction and flotation. The combination of balanced weight, power-transfer differential, positive electric controls, and 138 hp... provides tractive effort that levels steep grades, supplies the "pull" to work where others falter.

Study these charts. Here's why D Tournapull maintains high efficiency in mud, sand, and on adverse grades... wherever the going is tough

WEIGHT DISTRIBUTION

	Empty		Loaded	
	Lbs.	%	Lbs.	%
D Tournapull Wheels	15,750	69	24,841	58
D Scraper Wheels	7,080	31	17,988	42
Total	22,830	100	42,830	100

Advertisement

weight distribution give D Tournapull® fast in all kinds of working conditions

Are you prepared for the big work program ahead?

As State and Federal money becomes available for road construction, your earthmoving contract opportunities increase. At the same time, your need for modern equipment becomes even more important.

For your big production hauling you will want Model C (18-yd.) and Model B (27-yd.) Tournapulls, with their new low, wide, fast-loading Full-pak** scrapers. But for your odds-and-ends work ... for much of your grading, backfilling, backsloping, stripping, shoulder maintenance, ditching, spreading sub-base, stockpiling, landleveling, and clean-up ... you can use versatile 9-yard D Tournapulls to your greater profit.

Of course, the only way to decide on which machines can serve you best is to consider their ownership-operating cost and see how they fit into your work program. There's a LeTourneau-Westinghouse Distributor in your area who is well qualified to help you analyze your equipment needs, and provide basic facts and figures from which you can reach profitable conclusions. Make a date soon with your L-W Distributor. He can give you the latest facts, figures, and delivery dates.

**Trademark—DP-1423-G

RIMPULL

Gear	Speed (2,000 rpm)	Rimpull (lbs.)
1	3.2 mph	12,100
2	6.1 mph	6,360
3	11.9 mph	3,260
4	20.7 mph	1,870
5	29.5 mph	1,310

* Usable rimpull depends upon weight of payload and ground conditions.

GRADEABILITY

Percent of Grade

D TOURNAPULL with SCRAPER		ROLLING RESISTANCE OF HAUL-ROAD									
		65#†		85#†		100#†		150#††		200#‡	
		Loaded Unit*	Empty Unit	Loaded Unit*	Empty Unit	Loaded Unit*	Empty Unit	Loaded Unit*	Empty Unit	Loaded Unit*	Empty Unit
Gear	Speed (mph)	%	%	%	%	%	%	%	%	%	%
1st	3.2	25.0	38.1	24.0	37.1	23.3	36.4	20.8	27.0	14.0	16.6
2nd	6.1	11.8	25.1	10.8	24.1	10.1	23.4	7.6	20.9	5.0	16.6
3rd	11.9	4.3	11.2	3.3	10.2	2.6	9.5	0.1	7.0	—	4.5
4th	20.7	1.2	5.1	0.2	4.1	—	3.4	—	0.9	—	—
5th	29.5	—	2.5	—	1.5	—	0.8	—	—	—	—

* 20,000 Pound Payload
† Tractive Efficiency of .6 Used
†† Tractive Efficiency of .5 Used
‡ Tractive Efficiency of .4 Used

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With HAUSERMAN as a dependable subcontractor, you deal with one source—one responsibility for interior walls. No need to coordinate the activities of several trades. Result: less time spent in field supervision . . . full profit on the contract.

By supplying detailed working drawings, HAUSERMAN also saves valuable drafting-room time for you. And to insure fast, expert service, HAUSERMAN maintains a complete stock of standard parts and accessories, plus a nation-wide engineering and erection service.

HAUSERMAN fabricates a complete interior for a building while its exterior takes shape . . . then installs hundreds of feet of wall a day as soon as the building shell is complete. Weeks of finishing are eliminated, too. HAUSERMAN Walls are installed complete with trim, glazing, hardware and a factory-applied, baked-enamel finish. For complete details, ask your nearby HAUSERMAN representative about the "Seeing is Believing" story. Consult the Yellow Pages, and call today.

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Demountable Machine Vacuums Street Litter

A vacuum type cleaner for clearing city streets of items that include newspapers, magazines, bottles, cans, glass, leaves and other debris and can be mounted on either a jeep or small truck is now available.

Called the Tarco Gutter Vac, the machine has three main parts: an independent power unit, a suction system and a dirt-trapping, air-filtering trash-receiving compartment.

The power unit consists of an industrial gasoline engine, with an electric starter and a fast-acting disk-type clutch.

The suction system centers around a large fan contained in a stainless steel-lined housing, and a large diameter flexible suction tube. A smaller, optional, suction tube may be used where a hard-to-handle spillage of litter occurs—as a split bag of plaster or cement.

The trash receiving compartment has two large doors each of which enclose an air-filter element.

The machine operates with a single adjustable steel broom which pushes loose litter into the path of the tube, and it can clean a 24 in. swath at one pass. TARRANT MFG. CO., SARATOGA SPRINGS, N. Y.

Machine Extrudes and Compacts Asphaltic Curbs

A newcomer to the product line of the Miller Spreader Corp. is an automatic asphalt curb extruder called the "Curbuilder". The machine comes in two models, a "twin" form and a "mono" form—the twin form has two compacting chambers.

According to the manufacturer, the machine design permits placing curb at the extreme edge of the pavement or within 1 in. of any wall or obstruction. A tapered curb form is said to insure maximum compaction and smooth finish surface on the curb, and compaction ranges of from 90 to 110% are said to be obtainable.

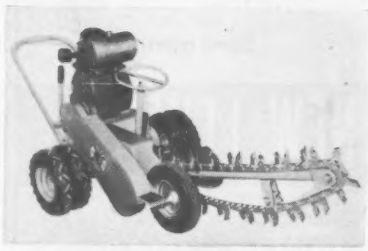
The motor exhaust is directed so that it cleans and heats the surface ahead of the form.

The hopper is loaded by hand and the machine operated by one man who steers and operates. MILLER SPREADER CORP., 4020 SIMON RD., YOUNGSTOWN, OHIO.

Power Boost Announced For Arc Welder Engine

The Miller Electric Mfg. Co. has announced two improved models.

Now equipped with a larger 12.9 hp engine, the model AEA-200-L welder is said to produce a full 225 amp of continuous rated, high cycle welding current or 5 kw of 110/220 a-c power for operation of power tools, lights, and other devices. The model AEA-200 does not offer the 110/220 power feature. MILLER ELECTRIC MFG. CO., APPLETON, WIS.



Tiny Trencher Produced for Quick, Small Jobs

A low-cost, high utility service line trencher is now available through the Charles Machine Works, Inc.

Called the Model M Ditch-Witch, the trencher is completely mobile with three forward digging speeds and a reverse, plus road speeds of up to 5 mph. According to manufacturer's tests, in normal digging conditions the machine will trench at speeds of 1½ to 6 ft per min, at trenching widths and depths varying from 3 in. to 6 in. in width and up to 48 in. in depth. When digging, the machine deposits all spoils on one side of the trench. CHARLES MACHINE WORKS, INC., PERRY, OKLA.

New Truck Crane Has 45 Ton Capacity

Production of a new 45-ton capacity truck crane has begun at the Koehring Co. According to the manufacturer's information the new unit will weigh 90,080 lb, a weight that can be reduced for transit to 67,100 lb by removal of the boom, counterweight and outrigger beams.

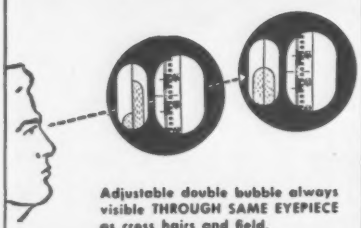
Designated as the Koehring 445, the new crane can use up to a 120 ft boom. Truck has eight speeds forward and a top speed of 31.8 mph. The truck chassis, mounted on a 220-in. wheelbase, is 10 ft 1 in. wide and 30 ft 2¼ in. long. Koehring Co., Milwaukee 16, Wis.

SURVEYORS!

Save time

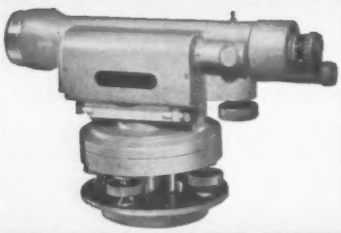
Save money

NEW LEVEL with



Adjustable double bubble always visible THROUGH SAME EYEPIECE as cross hairs and field.

DOUBLE BUBBLE



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- No need to turn telescope during leveling
- American type—erecting eyepiece, 4 leveling screws
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INSTRUMENT CORP. OF AMERICA
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ADDRESS.....

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New Jibs Increase Uses of Link-Belt Cranes

Three new high capacity jibs, of 20-, 30-, and 40-ft lengths, with 6-, 5- and 4-ton maximum capacities, are now available for use on the Link-Belt crawler and rubber-tired shovel cranes.

According to the manufacturer, the new jibs offer double the capacity of previous Link-Belt Speeder jibs. Basic factor behind the capacity increase is the fact that the new jibs are fabricated from a high strength alloy steel which equals or surpasses the strength of, but is considerably lighter than standard structural steel used for other jibs. LINK-BELT SPEEDER CORP., CEDAR RAPIDS, IOWA.

New Concrete Truck Mixer Has Front Engine Power

New five to seven cubic yard "Mixomatic" Truck Mixers featuring front engine power take-off with Fordomatic transmission was announced last week.

An automatic transmission provides four discharge speeds allowing a greater flexibility of concrete flow and controls are simplified with two levers. Additional design and equipment features are a new hopper for faster charging and a three-way quick shut-off water valve.

Two speed gear box and the take-up drive chain are easily accessible for maintenance.

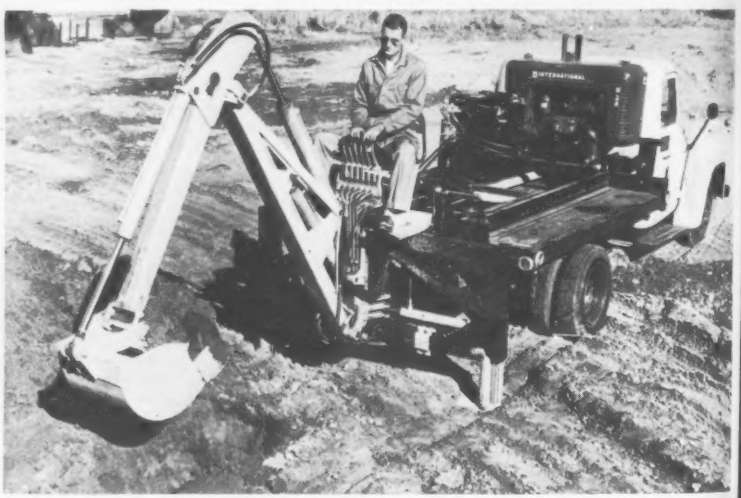
Total weight of a 7 cu yd truck mixer is approximately 6,800 lb. WILLARD CONCRETE MACHINERY CO., 11700 WRIGHT RD., LYNWOOD, CALIF.

Hydraulic Ejection Trailer Is Now Part of Athey Line

A hydraulically-controlled ejection trailer with an ejection force of up to 200,000 lb has been added to the product line of Athey Products Corp.

Named the PE21, the 31-ton capacity rear ejecting trailer was developed, according to the manufacturer, primarily for handling sticky materials, and for spreading the load and partial load dumping into less-than-trailer capacity hoppers or crushers.

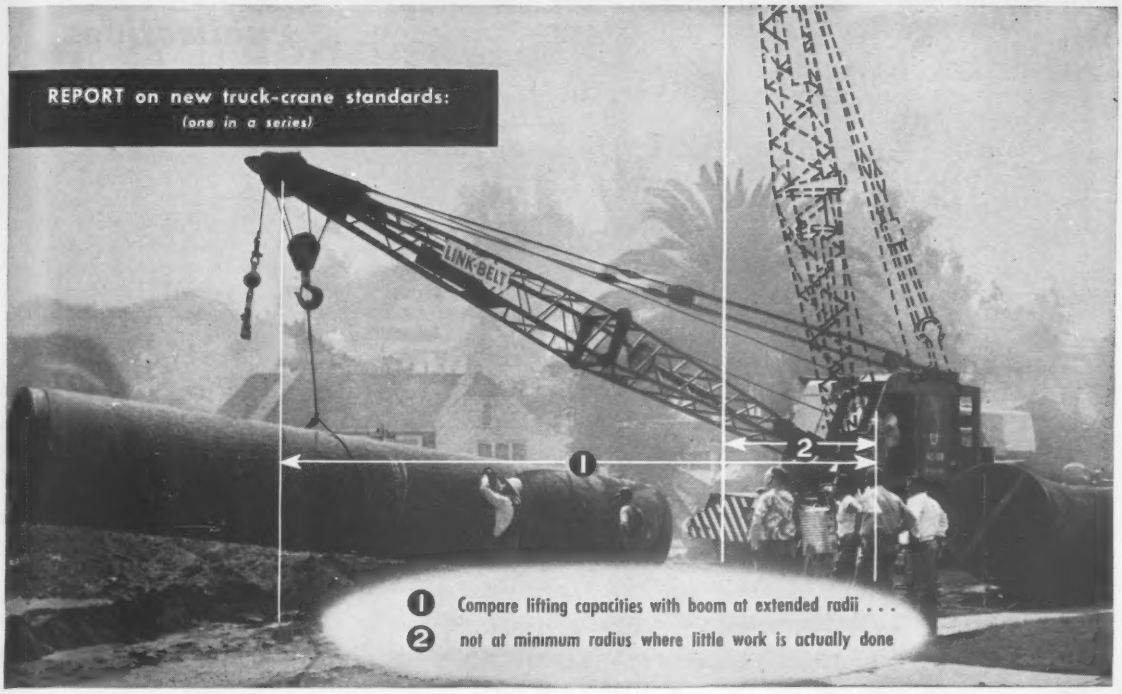
Powered by a Caterpillar DW21 tractor, the trailer is controlled by two hydraulic rams to move the ejector plate to the rear and return it to carry position. ATHEY PRODUCTS CORP., CHICAGO, ILL.



Truck Mounted Backhoe Has 200 Degree Arc

A development that provides a 200 deg operating arc on the 210 Davis backhoe has been announced by Mid-Western Industries. The great working arc is provided by a rotary hydraulic boom swing cylinder that gives a constant but cushioned swing, the manufacturer claims. The arc can be accomplished without use of cables and without changing of any pins.

Other exclusives claimed by the manufacturer include interchangeable mounting locations on each end as well as the center of the frame, so that the attachment can switch operating positions from center to side for flush digging alongside buildings, fences and other places where hand operation has previously been required. The backhoe is also available in the Model 185 which can work at right angles to the tractor. It has 7,000 lb of breakout force. MID-WESTERN INDUSTRIES, INC., 1009 SOUTH WEST ST., WICHITA, KANS.


REPORT on new truck-crane standards:
(one in a series)
LINK-BELT
1
2
1 Compare lifting capacities with boom at extended radii . . .
2 not at minimum radius where little work is actually done

TRUCK-CRANE PRODUCTION: Most truck-crane jobs require using long booms at extended radii. Under these circumstances, Link-Belt Speeder machines are unsurpassed. Why? Because of high strength-alloy booms and new high-capacity jibs, extra "live" weight, strategically located uppers for better balance and stability plus advanced-design features such as clutch *up* and *down* on boomhoist.

Extending truck-crane utility

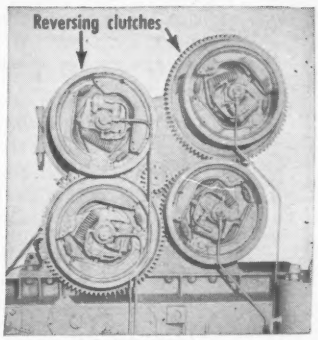
With new increased lifting capacity at extended radii plus outstanding mobility, Link-Belt Speeder Zephyr-cranes handle many jobs formerly handled by crawlers

Truck-crane production is directly related to lifting capacity. But lifting capacity varies with boom length and radius.

Thus, it's important to measure capacity on the basis of a boom out 25 feet and beyond where the bulk of the work is done. You'll be amazed to find that a Link-Belt Speeder far outperforms other similarly rated machines.

It's one of many ways a Link-Belt Speeder helps set new, more profitable standards of truck-crane operation. Contact your Link-Belt Speeder distributor or write for details. LINK-BELT SPEEDER CORPORATION, CEDAR RAPIDS, IOWA.

FAST, POSITIVE, SAFE CONTROL—True power hydraulic controls are a Link-Belt Speeder exclusive . . . utilize oil under pressure to do the work. The operator merely flips short-throw levers. Smooth - operating hydraulic - actuated clutches provide perfect feel of the load at all times.



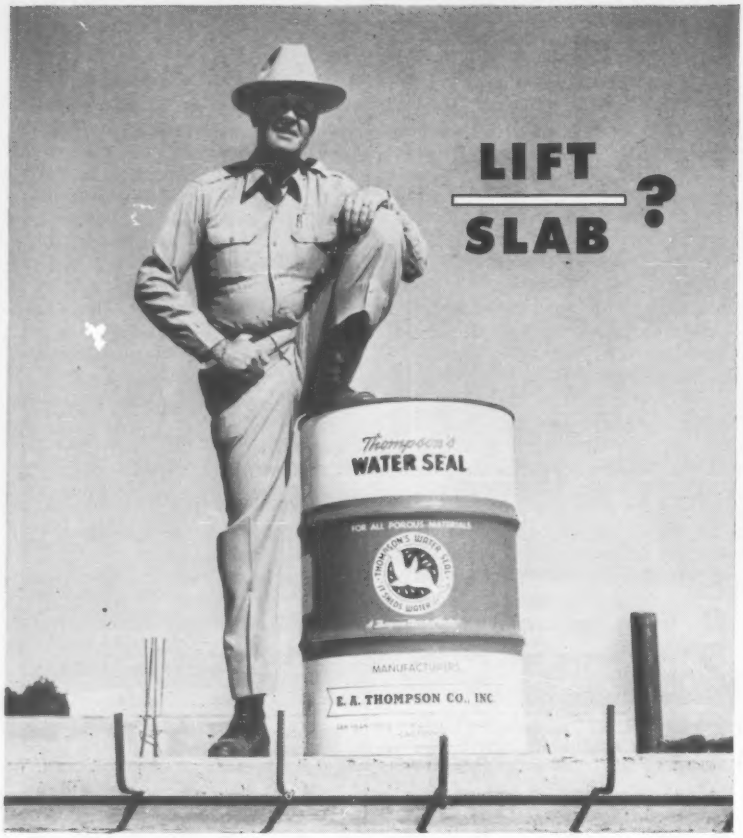
LOAD LOWERING CLUTCHES—Hydraulic-actuated reversing clutches are available for either or both main drums. They provide power load lowering of main hoist line and jib whip line. All clutches are interchangeable within a given machine . . . are self-adjusting for heat and normal lining wear.

14,530

It's time to compare . . . with

LINK-BELT SPEEDER

Builders of a complete line of shovel-cranes . . . with exclusive Speed-o-Matic power hydraulic controls



here's the West's Answer to your Concrete Questions!

* **How can you stop slabs from cracking while curing and get hard, dust-free surfaces?**
"Unlike membrane-forming mediums which often rub off, Thompson's Water Seal penetrates the slab for more efficient curing without foundry dust."
U. S. LIFT SLAB CORP., Austin, Texas

* **What separating method assures easy lifting and clean slabs without inherent stain or residue?**
"Thompson's Water Seal worked beautifully on the F.B.I. building – some of the finest slabs we have ever seen."
VAGTBORG LIFT SLAB CORP., Los Angeles, Calif.

* **Is there a form-sealer that assures clean and easy stripping so forms can be used again?**
"On form work and on all lift slab construction, we recommend Thompson's Water Seal. We've used it on many jobs with great success."
SKYHOOK LIFT SLAB CORP., Kansas City, Mo.

THOMPSON'S (deep penetrating) WATER SEAL is now Nationally distributed by
THE PITTSBURGH PLATE GLASS COMPANY
For complete specifications, write for new booklet 7-A-7

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Publications

Masonry Conference—The edited papers and discussions of the research correlation conference on natural stone and clay products conducted by the Building Research Institute in Washington, D. C. (ENR Sept. 27, 1956,-p. 24) have been reprinted in a 160 page publication. Building Research Institute, National Academy of Sciences–National Research Council, 2101 Constitution Ave., Washington 25, D. C.

Alkali-reactions in concrete—A series of about 30 progress reports on Danish investigations of concrete deterioration caused by alkali-reactions in the form of gel-exudations will be published over the next two years. The Danish National Institute of Building Research is conducting the investigation and will make the 30 to 50-page reports available only upon a special order. Price will be about 12 Dan. kr. each. The Danish Committee on Alkali-Reactions in Concrete, Borgergade 20, Copenhagen K. Denmark.

Plywood construction—A 34-page construction guide provides information on types, grades and applications of fir plywood. The manual, in four sections, explains plywood use in single and double-wall, floor and roof construction. Detailed structural drawing, recommendations, and plywood excerpts from minimum property requirements of the FHA are included. Douglas Fir Plywood Association, 1119 A Street, Tacoma 2, Wash.

Firebrick Data—An 8 page bulletin gives information on firebrick, high alumina and corindon brick. Data tables list the composition, porisity, spalling loss and other information on seven types of firebrick. In addition to 150 suggested uses, the bulletin gives general industrial applications and contains 40 illustrations depicting specific installations.. J. H. France Refractories Co., 1944 France Road, Snow Shoe, Pa.

Wire Rope—"Rope Dope," a long-time publication of Union Wire Rope Co., now has reached Volume No. 5—an accumulation of recommended practices in use of rope. Union Wire Rope Corp., Manchester Ave., Kansas City 26, Mo.

Mixer—A 4 page catalog describes the Model 3 ½S Dandie Junior concrete mixer—said to be a rugged, lightweight machine that can mix at a capacity of 3½ cu ft, plus 10% overload. Kwik-Mix Co., Port Washington, Wis.

THIS HOE HUMS RIGHT THROUGH ROCK

Owner Finds 35-M Hoe "Very Good at Digging Rock" --- Increases Production

The nation's home town, like everyone's home town, is bursting its bounds. Growth of Washington, D.C. has made necessary a new 20,000-foot sewer line along Wisconsin Avenue—total cost to be $265,000.

A ¾-yard Marion 35-M hoe is working steadily nine hours a day, six days a week, excavating a cut 9 feet wide by 12 feet deep for the 54-inch pipe. The machine's high gantry keeps the hoist cable at best angle in relation to boom position. And gooseneck design of the boom permits high, fast, clean dumping into the truck. The pleased operator terms this air-controlled hoe the fastest, easiest machine he has operated in 12 years of running shovels.

Your operator, too, will appreciate the arm-chair ease of handling a Marion. He'll hum a different tune at the end of a long work day when you've eliminated fatigue with an air-controlled Marion. And you will enjoy the profit tune he rings up with bigger production figures.

Right now, write or call your Marion distributor for complete details about this modern big-output hoe.

MACHINE	SHOVEL CAP. IN CU. YDS.	HOE CAP. IN CU. YDS.	CRANE RATINGS		
			CRAWLER MOUNT MAX.* STABILITY	MAX. USABLE	TRUCK MOUNT MAX. USABLE
MARION 35-M	¾	¾	18T @ 10′	18T @ 10′	25T @ 10′
MARION 43-M	1	1-1¼	27T @ 10′	27T @ 10′	35T @ 15′
MARION 362	1½	1½-2	43T @ 12′	30T @ 15′	
MARION 87-M	Special Crane		150T @ 12′	75T @ 15′	
MARION 93-M	2½	—	80T @ 12′	50T @ 15′	
MARION 101-M	3	—	84T @ 12′	57T @ 15′	
MARION 111-M	4	—	110T @ 15′	105T @ 15′	

*For Comparison Purposes Only

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(131)

A Progress Report on Faculty Salaries:

UP . . . But Not Nearly Enough

THE CHART on this page provides a report of the progress being made in solving a problem of crucial importance to every American. The problem is that of seeing that college and university faculty members get decent salaries.

This new chapter, which brings the story forward two years—from 1954, when it was last dealt with in this series of editorials, through 1956—has a decidedly cheering element. For in the last two years faculty salaries have made real headway.

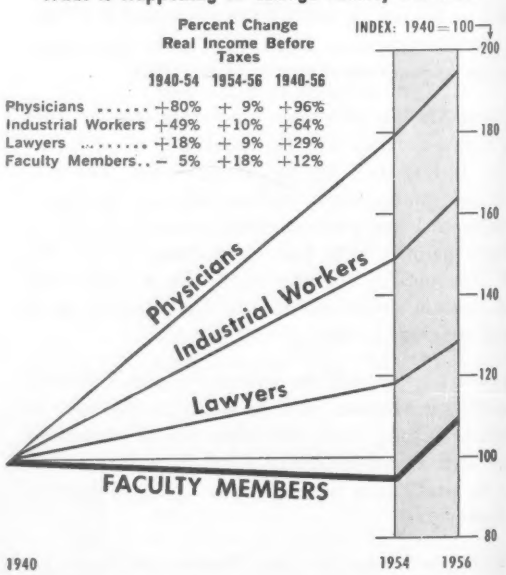
Two Years of Improvement

In 1954, in terms of what their salaries would buy, faculty members as a whole were actually worse off, by 5%, than they had been fourteen years earlier. As the chart shows, over the same period the real income of the average industrial worker had increased by almost half. And, in what it would buy, the income of the average physician, with professional training comparable to that of the average faculty member, had jumped by 80%.

In 1956, however, the average faculty salary would buy about 12% more of goods and services than it would in 1940. Relative to where they were two years before, faculty salaries showed a larger gain over the two years than those of any of the other groups whose salary progress is charted.

This movement of faculty salaries in the right direction has many contributing causes. The biggest single boost was given by the great Ford Foundation gift of half a billion dollars to our colleges, universities, and hospitals, almost half of which was ear-marked for faculty salary increases. Gifts from business firms have also

What is Happening to College Faculty Salaries



DATA: Council for Financial Aid to Education, U. S. Dept. of Commerce, U. S. Dept. of Labor, National Association of Education Research Dept., McGraw-Hill Dept. of Economics.

helped a lot. And so, in many cases, have stepped-up money-raising campaigns by alumni groups and cooperative regional and state groups of colleges.

Still a Long Way to Go

However, faculty salaries started their ascent from such a dismal depth that they still have a long, long way to go up before there is room for the comfortable conviction that they are fair, or even safe, from the standpoint of protecting the nation's vital interests. It still remains possible to find many shocking companion pieces for the following incident recently reported to a McGraw-Hill executive group, working on problems of financial aid to higher education, by the president of an illustrious small liberal arts college.

"The recruiting officer of one of our large industrial companies came to our campus a few weeks ago," the college president said, "and offered five of our seniors higher salaries to start working for that company when they are graduated next June than the salary received by any member of our faculty. And the seniors, of course, promptly went to their professors to seek advice on whether or not they should accept. It doesn't take much imagination to see what this sort of thing does to the morale of a faculty."

Senior Teachers Fare Badly

One of the more devastating things it does, of course, is to make the more experienced college and university faculty members receptive to the idea of going to greener pastures, currency-wise, in business and industry.

For these senior faculty members the financial pounding in the past 16 years has been even worse than the chart indicates. While the average real salary gain reported by the chart has been 12%, the average salary of a full professor still buys less than it did in 1940. This is because most of the salary increases have gone to beginning instructors, for whose services industry has been providing the sort of competition reported by the liberal arts college president.

And it creates this financial lackluster of posts as senior college faculty members right at the time their services are needed more than ever to handle the oncoming flood of college and university students. Between now and 1970 college and university enrollment is expected to double.

What is Needed Now

What is clearly needed is a continuation and intensification of the drive to increase their salaries to a point where college and university faculty members will be sharing somewhere near fully in the general prosperity of the nation. It could be counted good progress in this direction if over the next two years faculty salaries on the average were to go up another 12%, with most of the increase concentrated in the senior faculty ranks. And this can be made possible only through more outside contributions.

There is reason to be encouraged by the progress that has been made over the past two years in bailing college and university faculty members out of the terrible financial hole into which they were allowed to slide. But there is the most urgent occasion to keep at it and harder.

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments that are of particular concern to the business and professional community served by our industrial and technical publications.

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"VIADUCTO DAS ALMAS" bridge on the newly inaugurated Rio-Belo Horizonte Highway is supported on numerous stilt-like concrete columns.

One More Link on Brazil's Highway Network

Esthetically attractive in brilliant white concrete, the $180,000 "Viaducto das Almas", about 34 miles from Belo-Horizonte, was dedicated recently by Brazil's President Juscelino Kubitscheck.

The 858 ft bridge (built in a record time of nine months) is a part of the new 150 mile highway linking Rio de Janeiro with Belo Horizonte.

For the concrete structure, design load was calculated for a working (moving) load consisting of a 24 ton steam compressor, a 12 ton truck and a pedestrian load of about 137 psf. An impact coefficient of 1.3 was used.

The loading is classified as Brazilian Norm NB-6, which comprises three sets of wheels and roller wheel spaced about 10 ft apart. The distance from the front of the truck to the first wheel is about 5 ft.

The structure is of reinforced concrete built as a continuous rigid frame. The decking and roadway rests on two rows of reinforced concrete columns 1.6 ft square spaced 22.9 ft on centers. These are, in turn, supported by reinforced concrete foundation columns. The bridge is 106½ ft high and the roadway width is 27.6 ft; where curved, it is 29.5 ft wide.

The substructure pier columns were cast in place. U. S.-built earth augers were used to drill to the desired depth and to bell the excavation at the bottom. Reinforcing steel was then erected and the concrete poured into the forms.

The pier columns have a diameter of 2.9 ft with the belled base widened to about 6½ ft; 38 pairs were installed with a total length of approximately 2,260 ft—an average length of 31 ft per column.

To complete the bridge, 2,360 cu yd of crushed stone and 1,570 cu yd of sand were used for the aggregates. Some 11,600 bags of cement (110 lb per bag) went into the structure with 166 tons of steel rods as reinforcement. For formwork, 13,156 sq yd of pine planks were used.

Architect for the project was Sergio Marques de Souza, who is a member of the Faculty of Bridges and Structures of the National Engineering School at Rio de Janeiro.

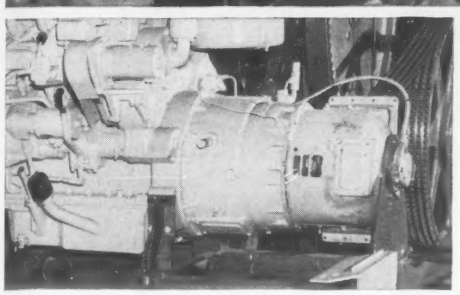
The contractor was Constora Rabello S/A and the engineer in charge was Marco Paulo Rabello.

Riviera Tollroad Is The First for France

Construction has just begun on a 30 mile toll highway, paralleling France's south coast from Nice westward past Cannes to Frejus.

It is the country's first tollroad and as such has occasioned considerable interest and controversy. The franchise, granted for 35 years to a private company, was decided on as the only way

Equipped with a Twin Disc Torque Converter, this 2½-yd. Lorain L-85 Shovel is working on heavy highway grading near New Stanton, Pennsylvania, for Lycoming Construction Co., Williamsport.



Inset (left) is a Cat D337 Diesel Engine-Twin Disc Torque Converter combination which is available in the Lorain L-85.

How torque converters *assure* higher dividends from your major equipment investments

Twin Disc Torque Converters, dependably and efficiently transmitting power to your heavy-duty machinery, *assure you a higher return* on your equipment investment, through *more work done in less time* . . . with a *minimum of maintenance and costly downtime.*

Here are five profitable, proved reasons why Twin Disc Torque Converters help you to earn *more* from your other equipment investments . . . such as the Lorain L-85 Shovel pictured above.

1. The torque converter eliminates lugging and stalling . . . permitting engines to work in the maximum efficiency range *all* the time, delivering *constant* high-horsepower output—getting more work done.

2. Experience has proved that *smooth* converter power reduces peak loads throughout the shovel drive train because fluid within the converter absorbs much of the impact energy resulting from a quick drum speed change . . . thus protecting *both* driving and driven equipment.

3. When necessary, the torque converter smoothly delivers approximately twice normal torque to the drum, which, at slow digging speed, represents an important advantage in power delivered to the dipper.

4. Cable life is extended since no sharp impact loads ever reach cables through the torque converter. Constant line tension is maintained . . . there is no jerking or snapping.

5. An infinite variety of ratios is available to work with, permitting smooth, accurate control of loads and delicate "inching" or "holding" under power.

Specify a torque converter in *your* next new machine, or when you repower. And investigate the advantages of Twin Disc Torque Converters—both single-stage *and* three-stage—for most other heavy-duty applications from 30 to 1000 hp.

For details, request Bulletin 508 and 135-E (single-stage and three-stage respectively.)

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Your nearby Leschen man can give you all the facts—and service records to prove them. Your own records—after using Leschen Flattened Strand—may very well give you final proof.

Leschen Wire Rope Division,
H. K. Porter Company, Inc., St. Louis 12, Mo.

HKP LESCHEN WIRE ROPE DIVISION
H. K. PORTER COMPANY, INC.

to finance the needed improvement within the reasonable future.

Present roads along this section of the Riviera are narrow, curvy and steep, built largely for tourist travel and spectacular scenery. The tollroad, some miles inland, is for fast travel and for the use of trucks as well as pleasure cars.

Called the Autoroute Esterel-Cote d'Azur, the new road will cut some 8 miles off the present route and greatly shorten the time of travel, which on congested days can now mount up 2 hr for the 20 miles between Cannes and Nice.

The new road will be built with two separated 22 ft roadways. Its sharpest curves will have a 1,600 ft radius, and its maximum grade will be 4%. About half of the alignment will be on tangent.

Scheduled to be opened in 1960, toll rates have tentatively been set at from 50 to 75 cents for a passenger car and from $1.75 to $2.50 for trucks for the 30 mile trip.

Brazilian Dams

Tres Marias, Furnas dams are two schemes in the big hydro plans for Brazil

A U.S. joint venture has won the contract to build the $30 million Tres Marias Dam on the Sao Francisco River in Minas Gerais State, Brazil.

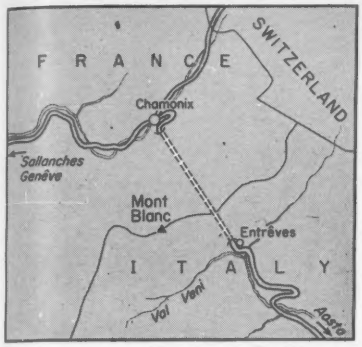
The winning combine for what is believed to be the biggest single hydro construction contract in Brazil's history includes Morrison-Knudsen, Utah Construction Co., Raymond Concrete Pile and Kaiser Engineering.

Tres Marias—featuring a 6,562 ft long earthfill dam—will be primarily a flood control project. However, it eventually will have a 500,000 kw generating capacity and also will allow the Paulo Afonso project downstream to double capacity because of the upriver flood control. Paulo Afonso has a planned ultimate capacity of 700,000 kw.

Bids are expected to be called some time around May on a single contract of $75 million for the giant Furnas Dam. This dam, expected to cost $300 million, will be on the Rio Grande, built upstream from American Foreign Power's Peixotos project (ENR Aug. 2, 1956, p. 43).

Furnas eventually will provide 1.1 million kw, and it also could double Peixotos capacity again by providing upriver control.

Total capacity for Tres Marias, Furnas and Paulo Afonso eventually will run to 2.3 million kw and have an ultimate cost of $500 million.



Mont Blanc Tunnel

French Assembly OK's participation in three-nation plan

With the long awaited decision of the French National Assembly this week, France has agreed to participate in the joint venture for the construction of a road tunnel under Europe's highest mountain Mont Blanc, at a cost of about $25 million.

The first plans were drawn in the period between the two World Wars, but it was only in May 1949 that an agreement of principle was signed in Rome between France and Italy, with the participation of Swiss delegates. The tunnel will be in French and Italian territory, but will represent a vital artery for Switzerland, since it will be the only direct road connection between Geneva and Northern Italy.

The Rome agreement set up an intergovernmental committee to study the technical and financial aspects of the project. Its findings having been favorable, a final agreement was signed in Paris in March 1953, but to become effective had to await ratification by the parliaments of France and Italy. Italy ratified the agreement quickly, but it took nearly three years for the French Parliament to make a decision.

Natural conditions for the drilling of the tunnel are quite favorable. Although it is the highest peak in the Alps, Mont Blanc is relatively narrow. At its base, the pyramid measures 8 to 10 miles, far less than any other Alp peak. It can therefore be drilled at a moderate, practically snow-free altitude, about 3,000 ft above sea level.

The 7.4 mile Mont Blanc Road Tunnel will be the longest automobile tunnel in the world. It will penetrate into the mountain on the French side at the altitude of 1,203 meters (3,946 ft) near Chamonix. Its southern entrance on the Italian side will be located

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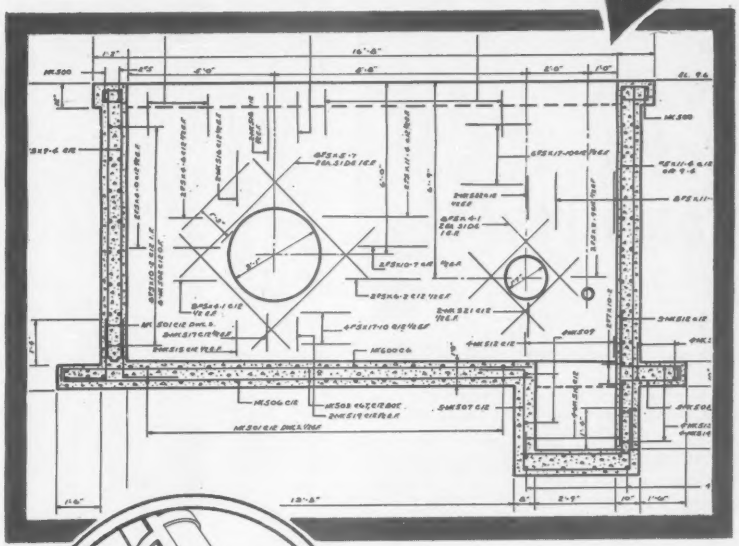

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This all-purpose water hose is long on wear and value. Easy to handle, it has a black, high-grade rubber cover that resists sun, weather, cracking and peeling. Black, non-porous tube.

Strong, durable SUCTION HOSE?

Here's a rugged, long-lasting hose for conducting water under pressure or suction. It resists kinking and crushing and has good sun, weather and abrasive-resistant qualities. Tube resists action of water containing light concentrations of alkalies, acids, grit and sand.

THESE are but a few of the many types of air, water and suction hose your Quaker-Quaker Pioneer distributor has on hand and ready to go. Call him—whatever your needs. For free brochures, write: *H. K. Porter Company, Inc., Quaker Rubber Division, Phila. 24, Pa., or Quaker Pioneer Rubber Division, Pittsburg, Calif.*

HKP QUAKER RUBBER DIVISION
QUAKER PIONEER RUBBER DIVISION
H. K. PORTER COMPANY, INC.

near the village of Entreve in Val D'Aosta, at an altitude of 1,380 meters (4,526 ft).

The roadway will be seven meters wide. There will be an 80 cm wide raised curb on one side and a 35 cm wide wheel guard on the other. Height clearance will be 4.35 meters on the sides and 4.80 meters at the center.

It is expected to take some three years to cut through the mountain, advancing 10 to 12 meters daily in both directions, using the most modern machinery. For the first time in Europe a three level "Jumbo-Robot" for automatic tunnel drilling will be used.

The estimated total cost is around $25 million, of which France will advance five billion French francs, Italy 5,400 million lire, and Switzerland some nine million Swiss francs.

The project would be a paying proposition because the road will be a toll road. It has been estimated that approximately 300,000 cars will use the road annually bringing in some nine million Swiss francs in tolls. It will also be open to trucks and carry an estimated 100,000 tons of goods a year.

As soon as traffic will warrant it, a second parallel tunnel will be bored.

The tunnel may also be used for the transmission of electric power from north to south or vice-versa, according to the season as hydrologic conditions vary considerably north and south of the future tunnel.

Financing will be assured partly by the participating governments and partly by public participation in the capital of the enterprise.

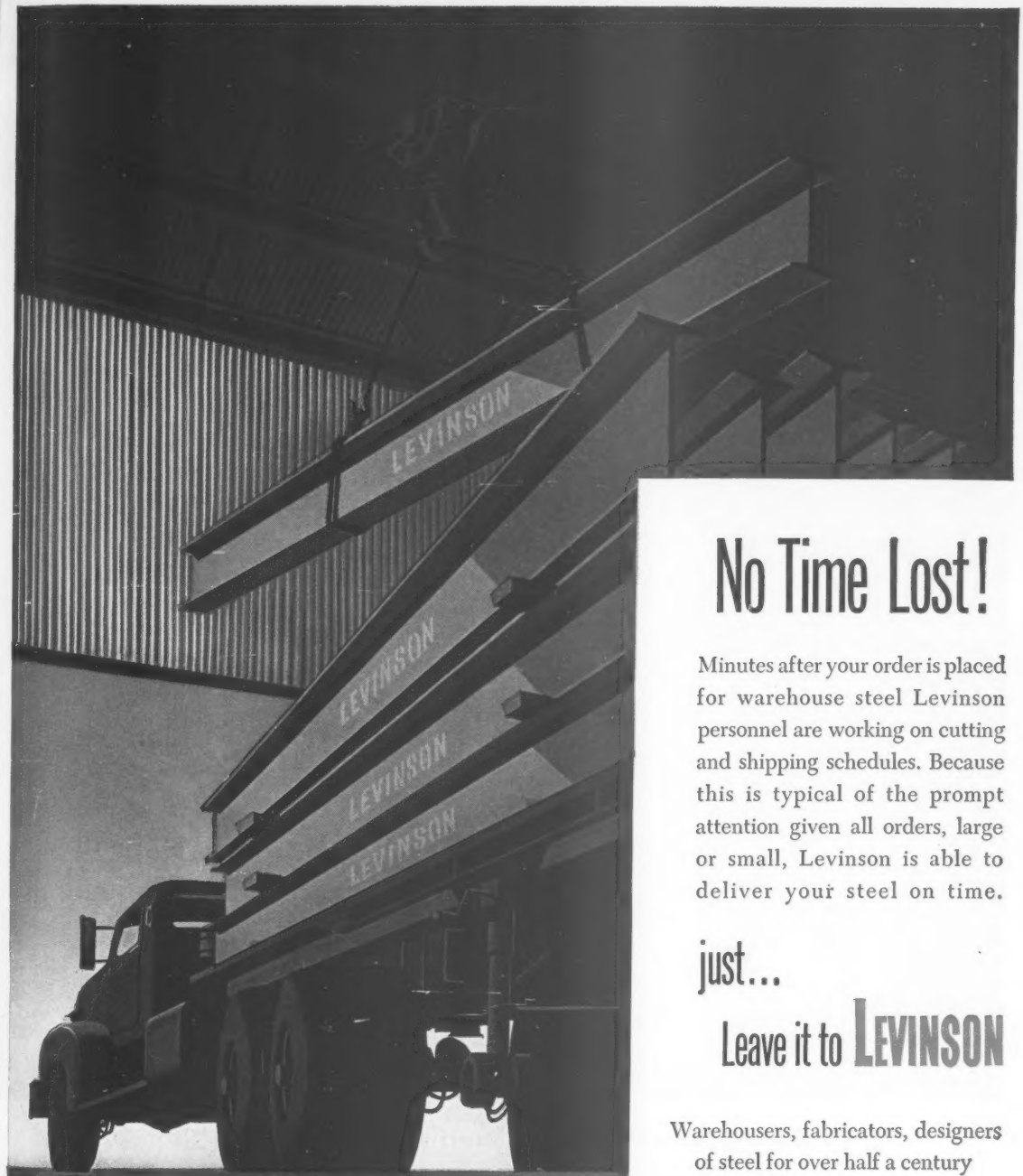
Ventilation of the tunnel will be by a "semi-transversal" system. A 7.6 square meter duct for fresh air which will also serve for the removal of infiltration water, will run underneath the roadway and will make it possible to send 300 cubic meters of air per second into the tunnel. This duct is believed to be sufficient for the elimination of combustion gases produced by 105 cars per hour in each direction.

Speed limit for cars inside the tunnel will be set at 40 kilometers per hour or some 24 miles per hour.

U. S. Firm to Survey Peruvian Port Development

A final contract has been signed between the Peruvian Government and the Tudor Engineering Co. of San Francisco for a comprehensive survey of Peruvian ocean and river ports.

Ports to be studied in particular are the principal ocean ports—Puno on Lake Titicaca, Iquitos, Yurimaguas and Pucallpa, in the Amazon region.



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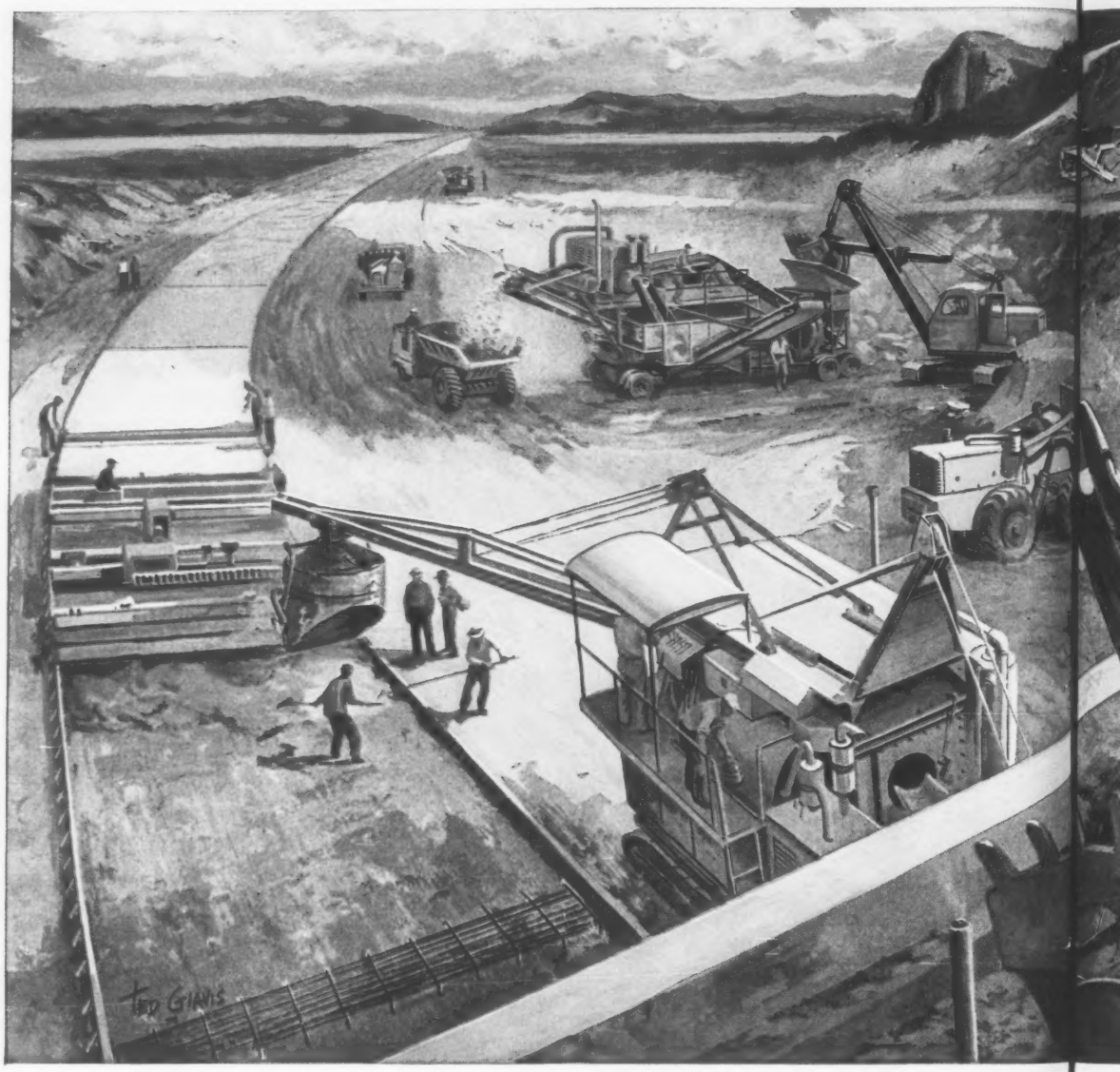
What's the most versatile Di



It's GM—Choice of more than 150 equipment builders

General Motors Detroit Diesel engines power more different types of road-building equipment—built by more manufacturers—than any other Diesel.

These versatile two-cycle engines drive compressors, crushers, drills, pavers, graders, shovels and the world's most powerful off-highway vehicles.

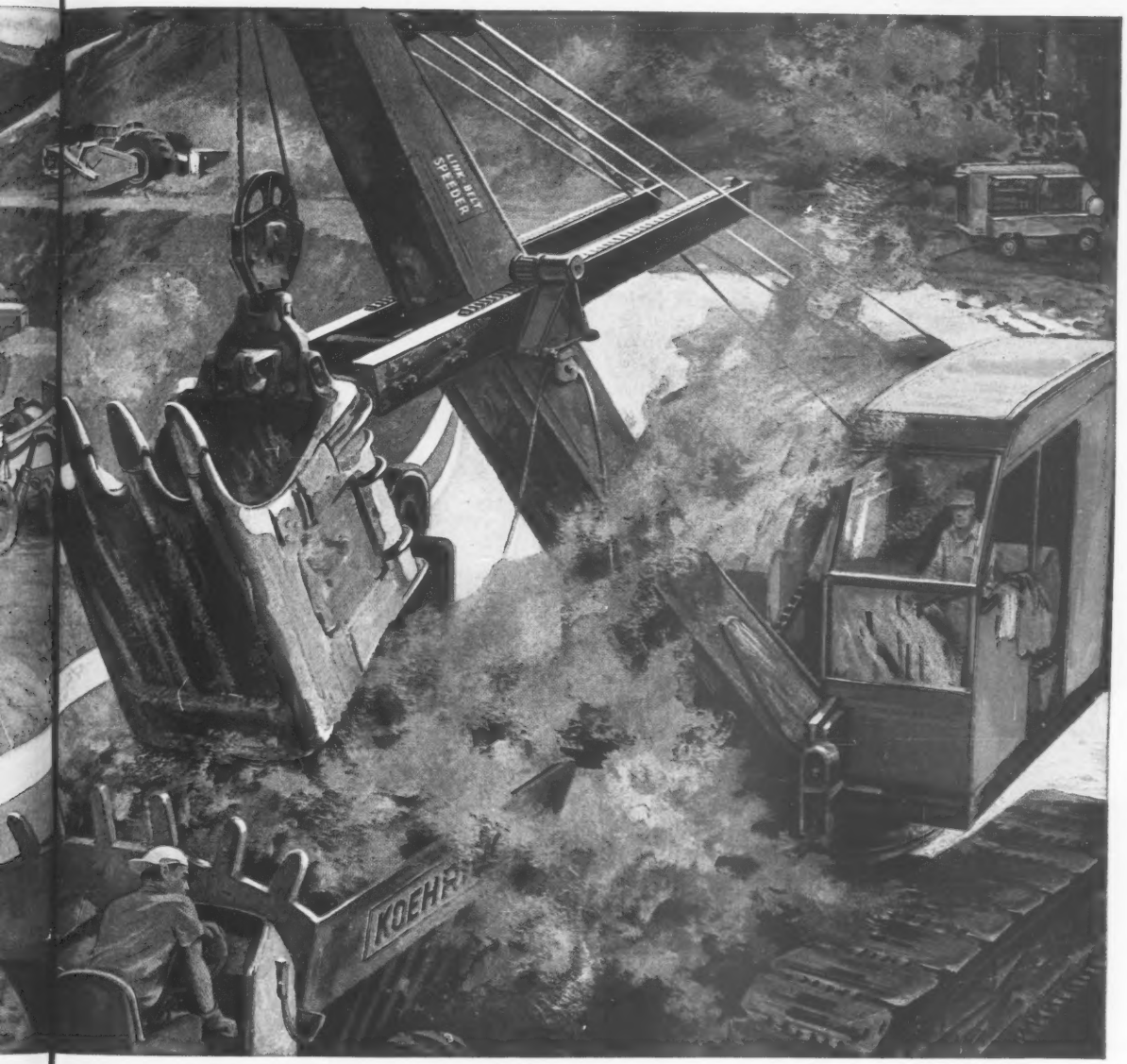
Leading manufacturers install GM Detroit Diesel power in more than 1000 different machinery applications because it gives their customers unequaled work output and dependability, plus the backing of a world-wide service organization.

Contractor experience has proved GM Detroit Diesel power more efficient than either gasoline engines or other Diesels on almost every kind of job from 30 H.P. up. And Detroit Diesel's new Turbopower engines deliver even higher efficiency *—up to 17% more power on the same fuel, or the same work with fuel savings up to 15%!*

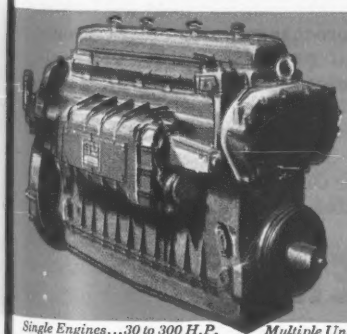
You're money ahead when you specify GM Detroit Diesel power in any equipment you build, buy or repower. It's America's First Choice Diesel *because it does more work at less cost!*

Single E

ile Diesel in Road building ?



Equipment shown includes: Blaw-Knox MultiFoote paver and spreader; Koehring Dumptors; Cedarapids rock crusher; Link-Belt and Unit shovels; Ingersoll-Rand air compressor; LeTourneau-Westinghouse Tournapull and Pettibone Mulliken front-end loader. Write us for complete list of over 1000 GM Detroit Diesel power applications.



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Cement Mixer Takes 60° Grade, one of many Four Wheel Drive tests. In all these grueling tests, Cities Service Lubricants make the grade and then some! They've done it for 20 years.

Early Four Wheel Drive Truck is one of vehicles in firm's museum. Founded in 1910, the company's first production amounted to 12 vehicles. Today, it is thousands yearly.

Toughest trucks made— Toughest lubricants used!

Four Wheel Drive Auto Company has been Cities Service customer for 20 years!

If you think things are tough on the trucks at your construction job or quarry, you should visit the Four Wheel Drive plant at Clintonville, Wisconsin.

There you'd see famous Four Wheel Drive trucks going through tests tougher than they'll probably ever meet on your job or anyone else's.

Ditto for the Cities Service Lubricants that Four Wheel Drive uses.

For what could be tougher on a truck and its lubricants than grinding up a hill in loose sand . . . sinking axle deep in a mud bath . . . driving diagonally across a washboard test ground . . . and climbing a 60 degree grade of dirt or gravel?

Make no mistake, Cities Service Lubricants meet the test . . . and have for the past 20 years at Four Wheel Drive Auto Company.

So it stands to reason that however tough the terrain and conditions on *your* job, Cities Service C Series Motor Oils and Trojan H Multi-Purpose Grease will more than make the grade . . . especially if you follow the expert recommendations of your Cities Service Lubrication Engineer.

For all the details, call the nearest Cities Service office, or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, New York.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

Drinking Fountains

Plan locations to cut client's future costs

All too often the only costs considered in picking the location for a drinking fountain in a factory or office are the value of the space the fountain will occupy and the length of the plumbing lines. The designer should not overlook two other factors, however, that will bear heavily on the continuing real costs to his client of providing drinking water for the work force that will eventually occupy the building. First is the time it takes a worker to walk to and from the fountain, and second is the time he spends at the fountain once he arrives.

In connection with their business of manufacturing electric water coolers, Cordley & Hayes have studied this subject extensively and have uncovered certain facts that can help determine the best locations for fountains. They have learned for example, that the average worker takes four water breaks per day and walks to and from the water cooler at the rate of 320 fpm. They have observed also that the worker is less inclined to dawdle if the fountain is in an exposed location.

Translating the above facts into costs: If D is considered to be the average distance between work stations and fountain, each worker spends $8D/320$ min per day walking to and from the water cooler. To figure the annual cost of the daily parade for the whole plant, divide $8D/320$ by 60 to convert minutes to hours; then multiply by Y, the average number of work days in a year; by E, the average total number of employees; and by W, the average hourly wage rate. Stated algebraically, annual cost = $DEWY/2{,}400$.

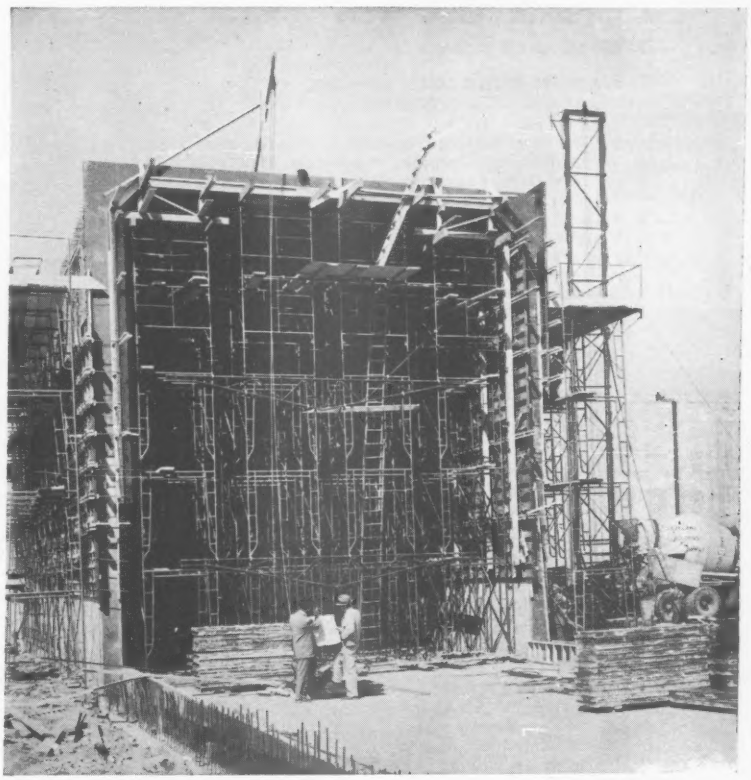
•**An example**—If the formula is applied to a plant with say 25 employees, who work 240 days a year and earn an average of $2 an hour, and if they walk 75 ft on the average from the water cooler, their walking time to and from the fountain costs the boss $375 a year in wages. The sum will drop $125 if the distance is cut to 50 ft. Conversely, the cost will rise $125 if the distance is increased to 100 ft.

But this cost is for walking time only. If the cooler is in some out-of-sight place like a washroom, workers may loiter and engage in idle conversation. This is likely to double or triple the time consumed for water breaks.

It is obvious from the foregoing that two ways to cut drinking-water costs are (1) to locate the coolers in the open and (2) to place them near the workers. Cordley & Hayes' experience shows that a cooler should be within 50 ft of the majority of persons who will use it. If distances run much above this, another cooler should be considered.

Furthermore, even where the distances are under 50 ft, it is uneconomic to expect a single cooler to serve more than 75 or 100 persons. If worker density is high enough to make greater demands on a cooler, two or more smaller ones will reduce both congestion and walking distance.—WILLIAM J. MAYS, FIRST VICE PRESIDENT, CORDLEY & HAYES, NEW YORK, N. Y.

(*Field and Office continued on page 88*)



Wind Tunnel Forms Advance on Rolling Rig

To support roof and wall formwork during construction of a supersonic wind tunnel, George A. Rutherford Co., Cleveland contractor, used a 36 ton movable assembly of pipe scaffolding 70 ft long and 36 x 40 ft in cross section.

The 1,300 ft concrete tunnel, located in Cleveland at the Lewis Flight Propulsion Laboratory of the National Advisory Committee on Aeronautics, was cast in 70 ft increments—one for each position of the falsework. After a curing period for each increment, the rig was retracted clear of the ceiling and walls and winched 70 ft ahead on pipe rollers to the next position. Each relocation took four hours.—NEIL CLARK, VICE PRESIDENT, ENGINEERING AND RESEARCH, WACO MFG. CO.

6 reasons for specifying and using SERVICISED membrane forming concrete curing compounds

1. Provide lowest unit of moisture loss
2. Meet official specifications for each particular type
3. Sprayed or painted on vertical surfaces, they will "stay put"
4. Save time, labor, material
5. Will not cake in the drum
6. Guaranteed uniform quality and results

WHITE PIGMENTED TYPE Servicised White Pigmented Curing Compound provides a film or membrane capable of reflecting heat. It is widely used in areas where atmospheric temperatures exceed 80°F., and properly applied, will reduce concrete temperatures approximately 15°F. Excessively high temperatures during the early hardening period tend to jeopardize setting of concrete and reduces its final strength. High quality inert pigments added to the basic compound also prevent too thin or uneven coverage, as improper application is readily seen. Used on all U. S. Engineers work.

CLEAR TYPE Servicised Clear Curing Compounds are available in both Wax-Resin and Resin Base Types. Only pure synthetic resins are used with carefully controlled proportions of oils and waxes, etc., in a petroleum solvent to insure a clear, impermeable membrane. Both types can be supplied with a fugitive dye which materially assists in securing proper coverage, and which disappears after application.

WAX-RESIN BASE. A general purpose compound, usually used on mass concrete, pavements. Has excellent water retention properties, allowing slow curing of the concrete which eliminates checking. Dries rapidly and forms a film of uniform texture.

RESIN BASE. Recommended for buildings, offices, architectural concrete, etc. The pure resins, oils and other ingredients present a clear film which does not materially alter the appearance of concrete and it permits early application of adhesives, paint, etc.

AIR ENTRAINING AGENT Servicised Air Entraining Agent is a highly active, homogenous and clear solution. A relatively small quantity produces maximum air dispersion, yet it is not so critical as to create wide fluctuations in the amount of entrained air should slight variations in the amount used occur. It will not settle out in storage or gum the dispenser, and its action is not jeopardized by the presence of Calcium Chloride. Servicised Air Entraining Agent meets all official specifications, comes ready to use and requires no additional ingredients or treatment before being used. Available in 5 gallon and 55 gallon drums.

Write for special circulars on Curing Compounds and Air Entraining Agent

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Builder Uses Polyethylene Film as Vapor Barrier

Polyethylene plastic, in the form of specially cut sheets 0.004 in. thick, is being used by builders of the 7,000-house Meadowdale subdivision at Carpenterville, Ill., in several ways as a low cost but effective vapor barrier.

In homes with a basement, two sheets of the plastic film are placed between floor beams over the basement and the subflooring. They are visible from below but covered on top by the flooring.

The plastic is used also as a moisture barrier between the soil and the concrete foundation walls. For slab foundations it underlies the concrete block footing and the floor slab.

The film is used as a protective covering for curing concrete and keeping lumber piles clean and dry. In addition, the builders staple the translucent film over window openings to keep out wind, rain and snow. On occasion, whole buildings have been enclosed by the plastic to protect unfinished work from sudden storms.

The builders estimate that the plastic, in replacing conventional building paper, saves over 50% in time and labor costs.

Two men can spread the film in half the time it takes the four required with conventional paper.

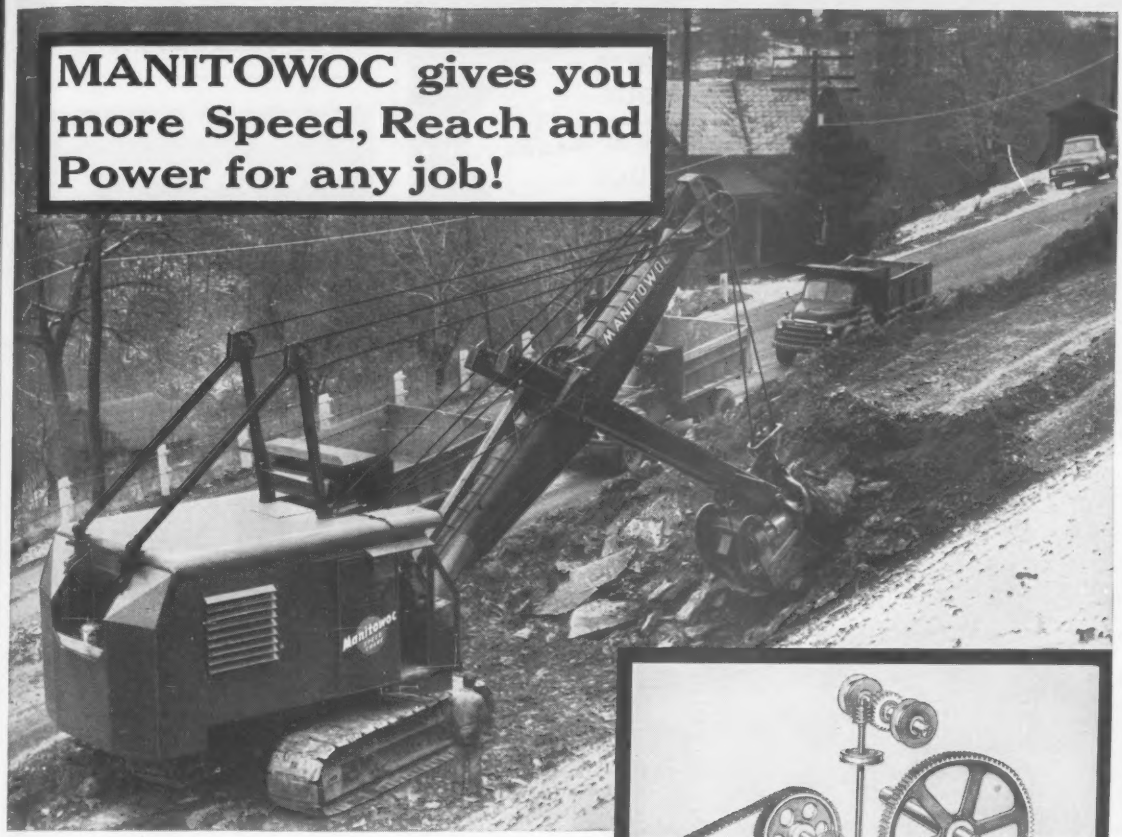
Fluorescent Red Cardboard Used for Surveying Targets

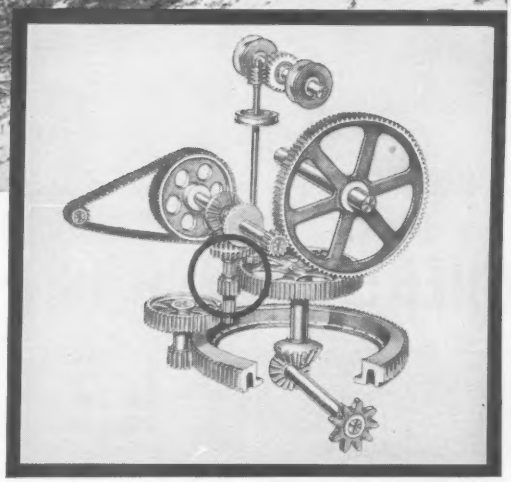
Sheets of fluorescent red cardboard, cut into 2x3 in. tabs, are being used for surveying targets in laying out the aqueduct that will bring Russian River water to the city of Santa Rosa, Calif.

The Sonoma County Flood Control and Water Conservation District, which will build the aqueduct, is using 2,000 sheets of Velva-Glo, a product of Radiant Color Co., Oakland. The river will be impounded by Coyote Dam, being built by the Corps of Engineers.

The bright red targets are easily spotted over considerable distances.

MANITOWOC gives you more Speed, Reach and Power for any job!





Successful contractors base their bids on a Manitowoc's ability to produce big yardage output — in less time — at lower cost. For instance, R. J. Nichols of New Bethlehem, Pa. uses a Manitowoc 2-yd. Model 3000 shovel to tackle a $1,134,000 highway job for the State of Pennsylvania. The work involves widening a 10 mile, 2-lane highway 4′ on each side and eliminating dangerous curves. An estimated 165,000 yards will be excavated before the job is completed. As a long-time user of Manitowoc equipment, Mr. Nichols, like many other prominent contractors, knows he can depend on his shovel to deliver more speed, reach and power to finish the contract on time — at a profit.

More "LOW-BID" Features

Simple Crawler Drive has positive, jaw-type steering — extremely maneuverable in tight quarters. **Completely Enclosed** travel gears and clutches keep going longer with less downtime. **Simple, Accessible Main Machinery** makes full use of power — is easy to get at for convenient servicing. **Dependable, Disc Type Clutches** are easily adjusted, with discs replaceable in minutes. **Smooth-Acting Air Controls** are available to keep your shovel runner at top operating efficiency the entire shift. **Self-Removing Counterweight** is available for fast, simple moves between jobs within highway load restrictions.

Bid more profitable jobs with Manitowoc — check the finest first, then decide!

Manitowoc Engineering Corp., Manitowoc, Wis.

Simple Design . . . Direct Power Flow

EXCLUSIVE SLIDING PINION arrangement (circle) makes use of only one set of clutches for travel, swing and boom hoist. Only working gears turn — all others are disconnected — for full power at the dipper.

ONLY 3 MAIN SHAFTS cross the rotating bed.

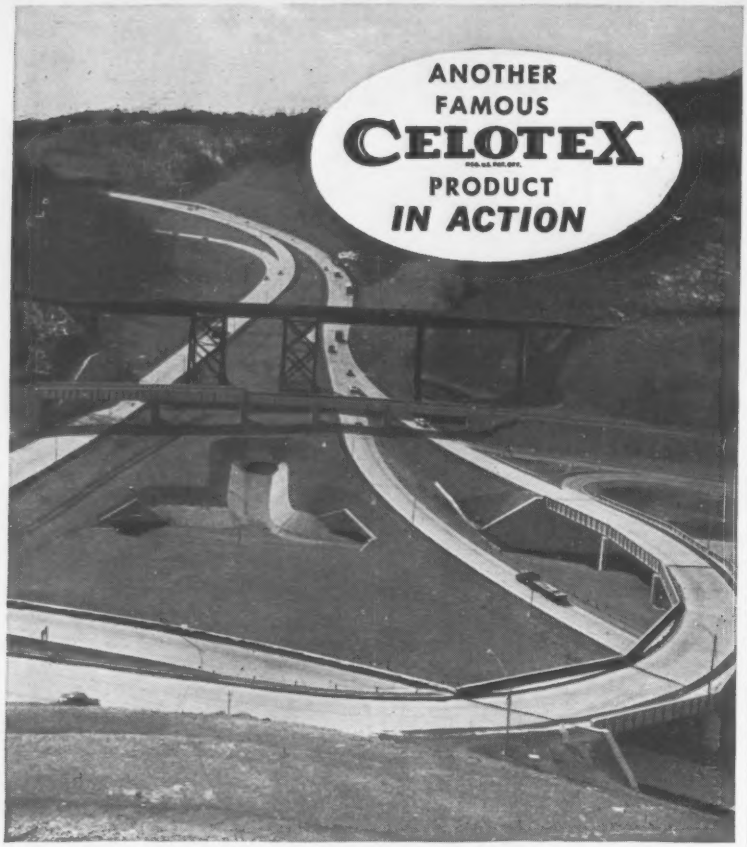
FEWER GEARS AND PINIONS — only 17 are needed in the Model 3000.

GREATER ACCESSIBILITY reduces downtime for maintenance and servicing.

SEE YOUR DISTRIBUTOR NOW!

MANITOWOC

SHOVELS 1-5½ YD. Speed Crane CRANES 20-100 TON



Saw Mill Run Interchange on Penn-Lincoln Highway

WHERE AN INCH IS A CHASM!

Typical Highway Installation showing use of dowel bars. Flexcell Bituminous Expansion Joint Filler can be delivered cut to size and fabricated to meet your needs.

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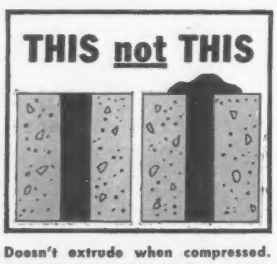
EXPANSION JOINT FILLER

1ST Choice Across America!

Men meeting today's road-building challenge know an inch can be a chasm in concrete highway construction. They like the better combination of performance characteristics you get with Flexcell Joint Filler. You'll like its low installation and maintenance cost, too.



Doesn't extrude when compressed. Gives best low-cost performance . . . over 25 years of job-proved dependability!

COMPRESSIBLE • NON-EXTRUDING • RESILIENT

Flexcell Joint Filler bonds firmly to concrete, compresses without extruding. Re-expands to keep joints filled, preventing intrusion of dirt and stones. Uniform asphalt impregnation, 35% by weight minimum. Unaffected by temperature extremes. Tough, rigid, light in weight. Easy to cut and install. Fabricated to your specifications.

Write for Complete Data Today • No Obligation

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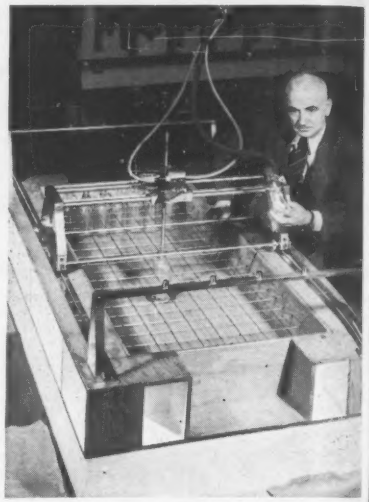
Research



Machine Samples Water Each Hour for a Week

A shop-built machine that will take a water sample every hour for a week automatically has been installed in Hammersley Inlet, near Shelton, by the Washington State Department of Fisheries.

The machine will make it possible to measure pollution under various tidal conditions and so detect and analyze levels of pollution not defectable before. Earlier research determined only that sulfite waste liquor from pulp mills was harmful to oysters at levels of 13 ppm and higher. Measurements now are sought at 3 ppm and lower.

The machine was built in the shops of the Department of Oceanography of the University of Washington under supervision of Clifford Barnes (shown above).

Army Develops Detector for Locating Crevasses

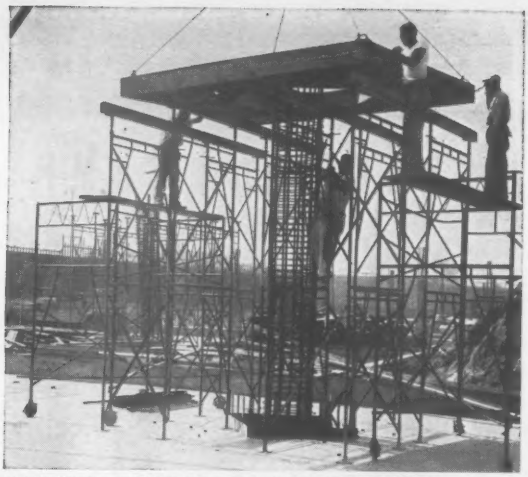
A device for locating and reporting hidden crevasses has been developed by the Engineer Research and Development Laboratories at Fort Belvoir, Va., and the Southwest Research Institute, San Antonio, Texas.

The device consists of four electrodes placed at 20 ft intervals. The unit creates a low frequency electromagnetic field, which is distorted by the presence of a crevasse.

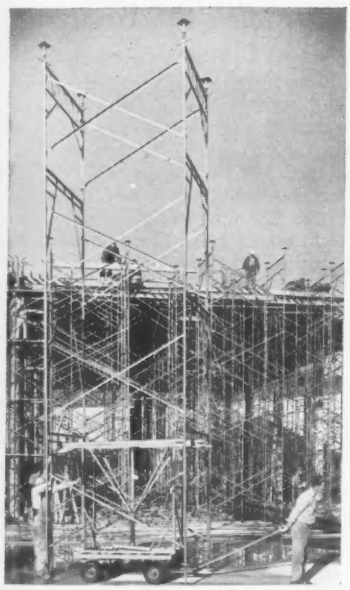
The Weasel, an over-snow vehicle, acts as one electrode and moves the three other electrodes, which are in the form of disk-shaped sleds about 4 ft square in size. The search head electrode is pushed ahead. The two sleds pulled

New Shoring Methods . . .

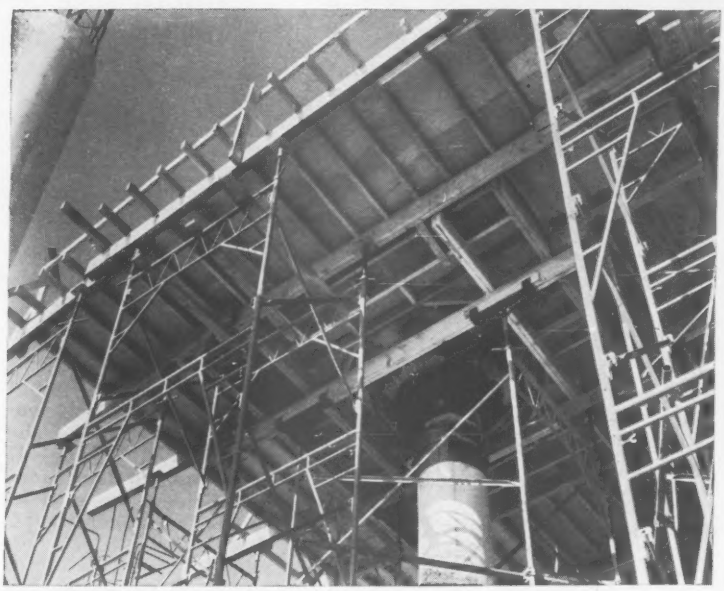
by Patent Scaffolding Co.



ROLLING SCAFFOLDS AID SHORING—"Trouble Saver"® Sectional Scaffolds make platforms for workmen guiding "prefab" drophead form being lowered by mobile crane onto 4x6 stringers. Donald F. Shaw uses this mechanized system on 3-story, 556' x 250' United Parcel Service bldg., Los Angeles. More than 2,700 "Trouble Saver" Shoring frames support formwork for 3" waffle-type floors.



DOLLY ASSIST—PS Co.-developed hydraulic, wheeled dollies speed the movement of entire prefabricated sections of "Trouble Saver"' Shoring to successive pours on this huge 291' i.d. concrete reservoir at Reading, Pa.



RESERVOIR SHORING—"Trouble Saver" Sectional Shoring frames support cantilevered, double 2" x 8" stringers around drop head under concrete slab for the same reservoir reported, left, on which B. F. Ziegler Construction Co. is the general contractor. Curved dome varies from 28' to 31' high. Assembled shoring sections are moved to new pour locations on PS Co.-developed hydraulic, wheeled dollies, and by caster attachments, similar to those shown in the photo above.

To help you with your scaffolding and concrete shoring methods, PS offers a complete nation-wide engineering service available to you locally. See the Yellow Pages in your 'phone directory. For the latest information, specs, and installation data on all PS Co. Scaffolds, write for free 32-page CATALOG "A".

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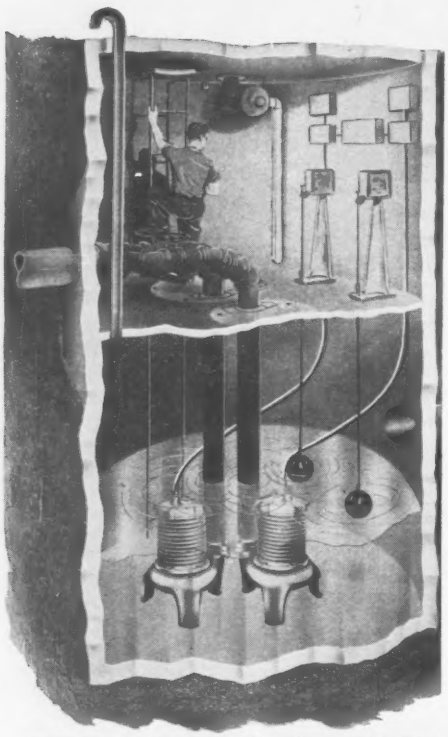

Illustration shows an economical installation which **does not require a pump house** to mar the landscape. This reduces the overall cost of the installation.

Engineered for

HEAVY DUTY DRAINAGE

DIFFICULT SEWAGE PUMPING

UNDERGROUND LIFT STATIONS

HIGHWAY UNDERPASS DRAINAGE

SUBMERGED OPERATION

Features

The new non-clog bladeless type impeller, the most efficient design for handling rags, stringy material and irregular solids with the liquids. 4" pumps will pass 2½" solids; 5" pumps will pass 4" solids.

The weil Submersible Non-Clog Sewage and Sump Pump is a pump designed to operate completely submerged under water. The only consideration where depth of setting is concerned is selection of the proper unit so that pump will have sufficient head to pump out of the sump. Pump can be installed and removed with low headroom above the wet pit. The submersible ejector is the same compact close coupled unit regardless of the depth of the pit.

Wide Range to Select From

The Submersible Ejector is available in discharges of 3", 4", 5" and 6" with heads to 60' and capacities to 2000 G.P.M.

Low Installation Cost

Simplicity in installation which requires only one piping connection and low maintenance due to the hermetically sealed motor assure economical installation and trouble-free operation.

Send for Bulletins SE-860 and SE-862.
See **weil** catalog in Sweet's 1957 and Domestic Eng. Cat. Dir. 1957.

weil PUMP COMPANY

1528 No. Fremont St. • **Chicago, Illinois**

behind combine to create the electromagnetic field.

In operation, the driver watches a special recorder that remains steady as long as the terrain is uniform. When the search head reaches a crevasse, the dielectric difference in the air in the crevasse and the surrounding area causes a noticeable change in the recording. The alarm is distinct when the Weasel is about 10 ft from the danger point. This is sufficient warning time, since the vehicle travels at a speed of 3 to 5 mph.

Power is supplied by a generator carried on a sled behind the vehicle. Provisions are also made to power the electrodes directly from the vehicle.

According to Lynn A. Smitherman, ERDL project engineer, the Engineers hope to eventually have a detector that will provide data on the depth, width, strike and bridge thickness of the crevasse and stop the Weasel automatically as soon as the search-head reaches the crevasse.

Does More Insulation Cut Home Construction Costs?

Use of more insulation than has been customary will reduce construction and operating costs of houses equipped with air conditioning. This is the main conclusion of a study sponsored by the National Mineral Wool Association.

An 18 month survey was made of eight houses in Air Conditioned Village, Austin, Texas, under the direction of John R. Watt, associate professor of mechanical engineering at the University of Texas. The houses were insulated according to recommendations of an air-conditioning equipment manufacturer. Insulation thickness ranged from 4 to 6½ in. in the ceiling and 2 to 3 in. in the walls.

Construction, equipping and operating costs were compared with the costs of insulating and equipping the houses according to Federal Housing Administration minimum property requirements.

The survey report claims that the cost of the increased insulation is more than offset by the savings in equipment cost because smaller air conditioning units are needed to maintain design temperatures. Based on prices in effect in Austin, the savings in construction costs to the builder averaged $139.60. The annual savings to the home owner in water, fuel and electricity was $107.90.

The report stated that in colder parts of the country comparable savings will be obtained not only in air-conditioning costs but also, to some extent, in heating.

The Statler-Hilton Hotel in Dallas, Tex. Architect: W. E. Tabler; engineer: Seelye, Stevenson, Value & Knecht, both of New York City; contractor: R. E. McKee, Dallas.

CONCRETE FRAMES AND FLOORS

...economical construction for modern hotels

The three-wing, 18-story Statler-Hilton Hotel in Dallas, Texas is the most economical hotel built in recent years by this international hotel chain.

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Reinforced concrete frame and floor construction offers unusual opportunities to designers. In this hotel, for example, the floors were cantilevered out to both sides of each wing from two rows of interior supporting columns.

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DESIGN NEWS

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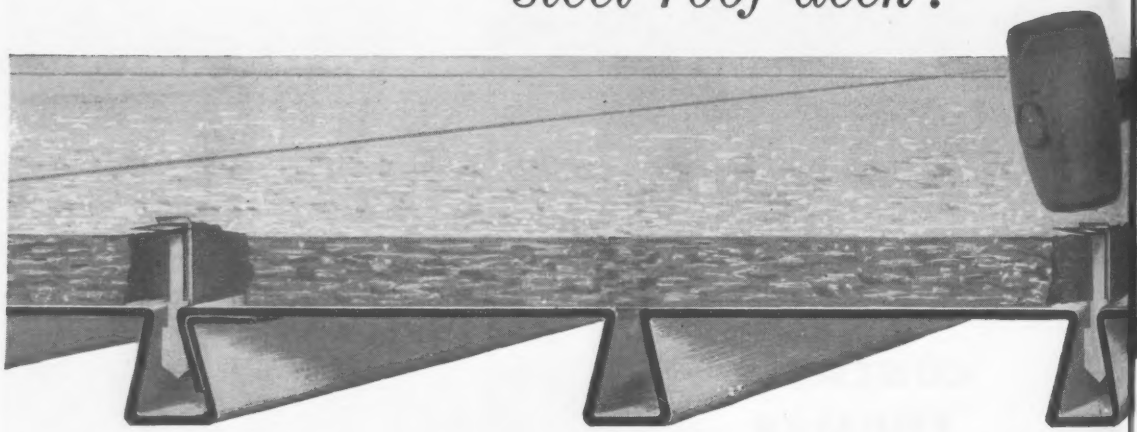

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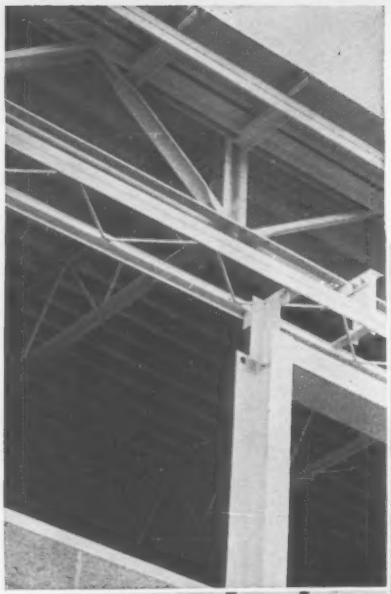

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George W. Pracy

West Coast Water Official Retires After Long Service

George W. Pracy, general manager and chief engineer of the San Francisco Water Department, has retired after 48 years with the department and its predecessor, the Spring Valley Water Co.

A 1908 graduate of the University of California, Mr. Pracy has served as manager of the department since 1949, when he succeeded Nelson A. Eckart. Projects built under his supervision include the new Sunset Supply Line and the Hillsborough Tunnel.

Mr. Pracy is a past president of the American Water Works Association and the San Francisco Section of the American Society of Civil Engineers.

M. J. Hoffman Resignation Ends 43 Year Road Career

M. J. Hoffman, Commissioner of Highways for the State of Minnesota for the past 18 years, will terminate a 43 year career as a roadbuilder and highway administrator when his resignation becomes effective on April 20. He will be succeeded by L. P. Zimmerman, who has been chief engineer since 1955.

During his service with Minnesota Mr. Hoffman was active in highway work on a national scale, and has been accorded many honors. He was president, in 1946, of the American Association of State Highway Officials, and served for 15 years on the AASHO executive committee. In 1949 he was given the George S. Bartlett Award for outstanding contributions to highway progress, and in 1952 he was elected vice president of the American Road Builders Association.

Mr. Zimmerman first joined the State Highway Department in 1921. During the early '30's he served as State Director of Public Works and then as State Relief Administrator. In 1946 he was named Hennepin County Highway Engineer, a post he left to become chief highway engineer for Minnesota.

Famed Spanish Engineer Lectures in U. S.

Prof. Eduardo Torroja, director of the Instituto Tecnico de la Construccion, Madrid, Spain, and a pioneer in thin-shell reinforced concrete construction, is currently in the U.S., as a guest professor at several schools of architecture and engineering, including North Carolina State, Columbia University, Massachusetts Institute of Technology, Harvard and Princeton.

Prof. Torroja is noted for his design of the 460 ft high double-curved Dam of Canelles in the Pyranees, the Esla railroad bridge, a 630 ft arch (ENR April 25, 1935, vol. p. 599) and the Madrid Race Course stadium, with a 36 ft cantilevered thin-shell concrete roof, to mention a few.

Arthur Casagrande

Society Elects President Presents Number of Awards

At its 109th annual meeting the Boston Society of Civil Engineers elected as president, Arthur Casagrande, professor of soil mechanics and foundation engineering at Harvard University. Named

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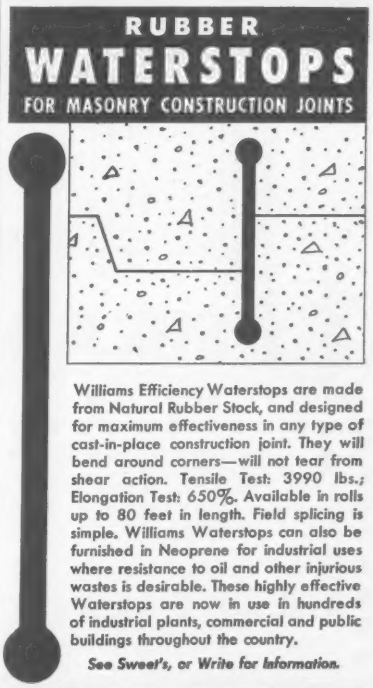
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as vice president is Frank L. Flood, partner in Metcalf & Eddy.

At the same meeting, this oldest engineering society in the country, with a membership of 1,050, presented the following awards: Desmond FitzGerald Award to Prof. T. William Lambe of MIT; Clemens Herschel Award to Jacob Feld, consulting engineer of New York; Sanitary Section Award to John S. Bethel, Jr., partner in Metcalf & Eddy; Surveying & Mapping Section Award to Prof. Charles L. Miller of MIT.

Harza Engineering Co. Names 12 as Associates

Harza Engineering Co., Chicago—consulting engineers specializing in hydro-electric plants and dams—has designated 12 of its engineers to become associates.

They include five chief engineers: Chester E. Bauman, electrical; Thaddeus Zowski, mechanical; J. W. Dixon, hydraulic; Clifford L. Wills, geology, and Andrew Eberhardt, civil. Three of the new associates, serving as project managers in the civil engineering department, are: Donald P. Roberts, Bruce M. Johnson and Franklyn C. Rogers. Three additional associates, serving as department heads, are: Kenneth S. Sorensen, planning; E. Pierpont Grahm, electrical, and George B. Schroyer, mechanical. Erik Rettig, who is resident engineer at the Karadj project in Iran, is the 12th associate named by the engineering company.

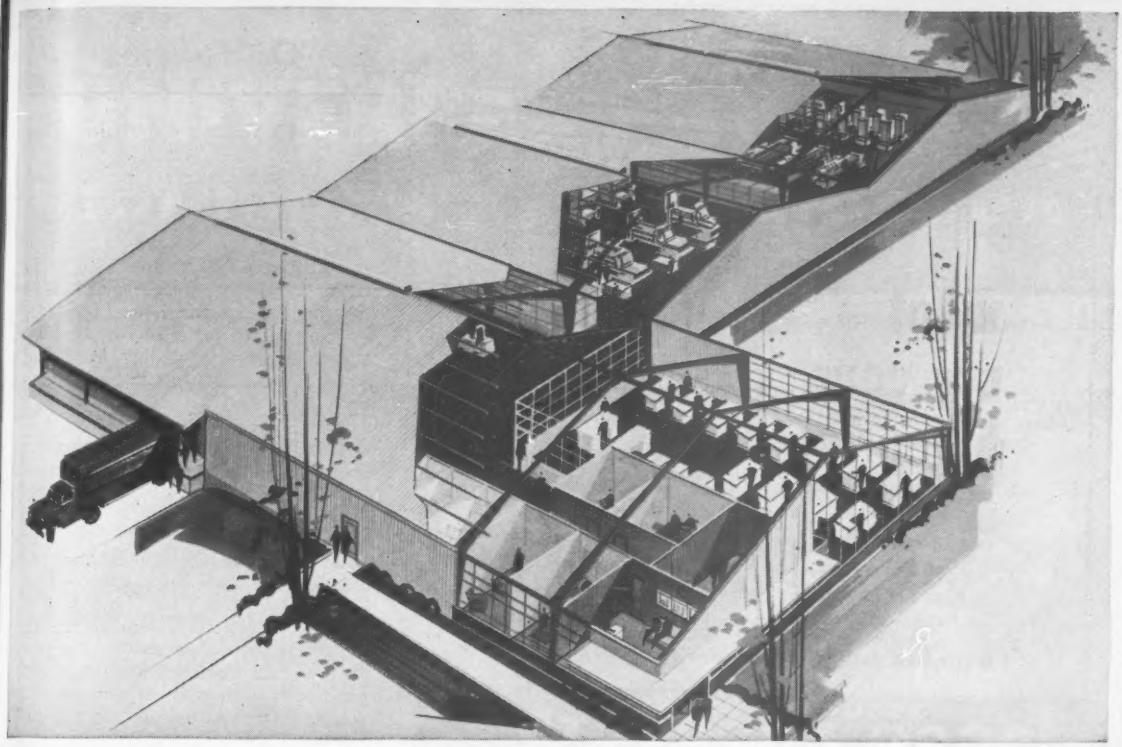
Careers . . .

Government

Col. E. A. Hansen, engineer comptroller in the Office, Chief of Engineers in Washington, becomes district engineer, Galveston District, Corps of Engineers, effective this August. He replaces **Col. W. P. McCrone** who is to be assigned overseas.

Prof. Russell C. Brinker, head of the civil engineering department at Virginia Polytechnic Institute, completed his naval service and retired as a Rear Admiral, Civil Engineer Corps, U. S. Naval Reserve, on Mar. 1, 1957—the 60th officer in the 89 year history of the Corps to attain two-star rank, and the 11th reserve officer.

Col. William P. Jones, Jr., recently assigned to the office of the Army's deputy chief of staff for personnel at Washington, will succeed **Col. E. P. Downing** as district engineer for the Corps of Engineers at Memphis, on June 15. Colonel Downing will be moved to the office of engineers as comptroller.



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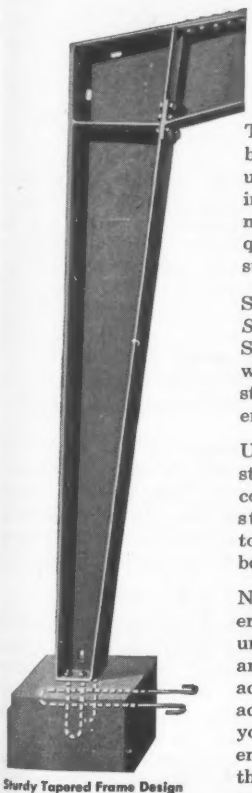

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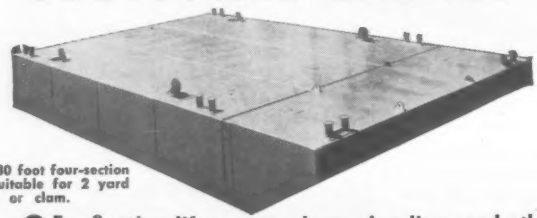

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Obituaries

Charles F. Haglin, 66, chairman of the board of C. F. Haglin & Sons Co., Minneapolis building contractors, died Mar. 4. A native of Minneapolis, he attended the University of Minnesota and received his engineering degree from Massachusetts Institute of Technology. The firm which Haglin headed was founded by his father in 1881, and constructed many of Minneapolis' largest structures including the Rand Tower and the Star and Tribune Building.

William J. Crouse, 53, engineer for the Kentucky State Highway Department, died Mar. 9. He was assistant to the chief highway department engineer.

Harry C. Offutt, 75, founder and past president of Indiana Engineering & Construction Co., Inc., Fort Wayne, died Feb. 24. He had pioneered the use of reinforced concrete—his company built the first reinforced concrete storage warehouse in the city, as well as many public and private buildings. Before forming his own company in 1910, he was assistant division engineer for Pennsylvania Railroad Co.

Glenn E. Thomas, 54, construction engineer on the Niagara Thruway, died Mar. 9 in Buffalo, N. Y. He was associated for the last three years with the consulting engineering firm of Hardesty & Hanover, New York City.

Mack Galbreath, 70, federal highway engineer for Kentucky for 34 years before he retired in 1955, died Mar. 9. He was graduated in civil engineering from the University of Missouri in 1912. He supervised road construction for the U. S. Bureau of Public Roads in 1914 and 1915 and then became district engineer for the State of Kentucky. In 1919 he returned to the BPR as its chief engineer in Kentucky.

Percy H. Thomas, 84, who from 1934 to 1948 was with the office of the chief engineer of the Federal Power Commission, died Mar. 18 at Montclair, N. J. He was an advocate of building giant windmills to produce cheap electric power.

James S. Peters, 68, long-time general manager and chief engineer of the Marin Municipal Water District, San Rafael, Calif., died Mar. 11. He had joined the district in 1912, when it was organized, and retired three years ago, continuing to serve in a consulting capacity.

(*Obituaries continued on page 102*)

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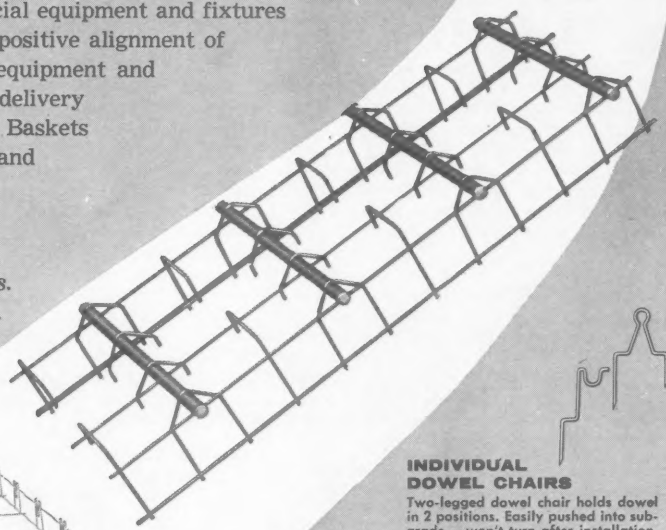

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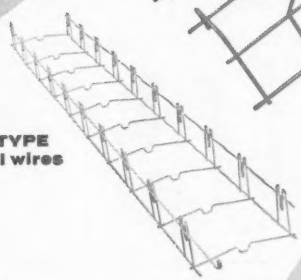

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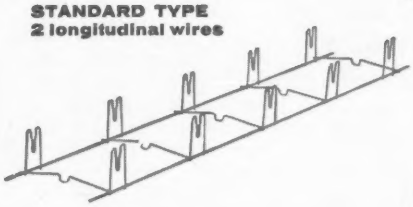

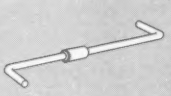

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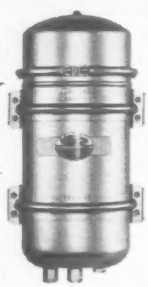

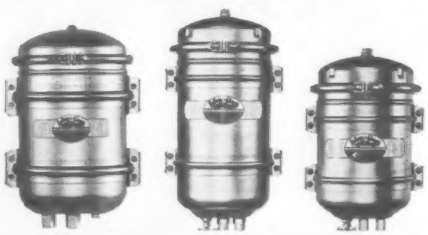

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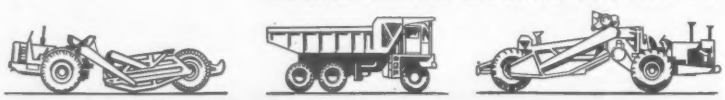


LUBER-FINER, INC. 2514 S. Grand Ave., Los Angeles 7, Calif.

. . . Obituaries

Charles S. Gleim, 69, a consulting engineer for the Port of New York Authority, died at his home in Wilton, N. H. on Mar 10.

Prior to moving to New Hampshire in 1946, Gleim had been an engineer in charge of construction for the port authority and in this capacity worked on the Holland and Lincoln Tunnels and the George Washington Bridge.

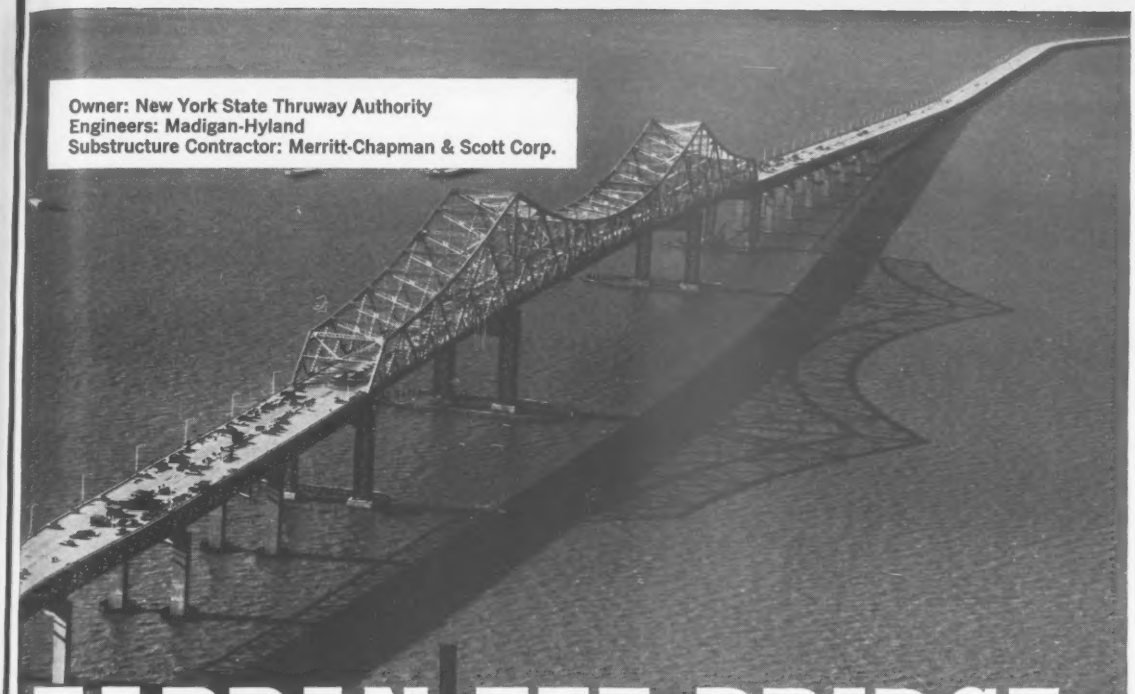
A native of Williamsport, Pa. Gleim served as a captain in World War 1 and participated in the Argonne and Marne campaigns. He held the rank of colonel in the National Guard, and at the start of World War 11 had command of the 245th Coast Artillery. He later commanded an advance engineering unit on the construction of the Burma Road through China. He also served on the staff of Lord Mountbatten in India before returning to the Port Authority in 1945.

David S. Gendell, Jr., 79, former general manager of construction for Bethlehem Steel Co., died Mar. 17 in Bethlehem, Pa. Glendell retired in 1945 after 44 years with Bethlehem and its predecessor companies. Among construction jobs he supervised was the Graybar Building in New York, the Outerbridge in Perth Amboy, N. J., and a major part of the Pulaski Skyway in New Jersey. He also took part in the building of the George Washington Bridge in New York and the Golden Gate Bridge in San Francisco.

Charles F. Matheson, 78, died in Portland, Oregon on Mar. 10. Matheson worked as an engineer on the construction of the Canadian Pacific Railroad, and from 1907 to 1912 he worked on Panama Canal construction. At the time of his retirement in 1941 he was in the engineering department of the Alaska Railroad.

Evan T. Hewes, 59, president of the board of directors and executive superintendent of the Imperial Irrigation District of California, died in mid-March in New York City. A pioneer in water development throughout California and a member of the governor's statewide water committee, he had been with the irrigation district for over 20 years.

Frederick Ohrt, 67, an honorary member of the American Society of Civil Engineers, died of a heart attack in Honolulu Mar. 13. Mr. Ohrt's 42-year civil engineering career included 23 years as manager and chief engineer of the Honolulu Board of Water Supply. It was for building that system into such an outstanding one that he was awarded ASCE honorary membership.



Owner: New York State Thruway Authority
Engineers: Madigan-Hyland
Substructure Contractor: Merritt-Chapman & Scott Corp.

TAPPAN ZEE BRIDGE:

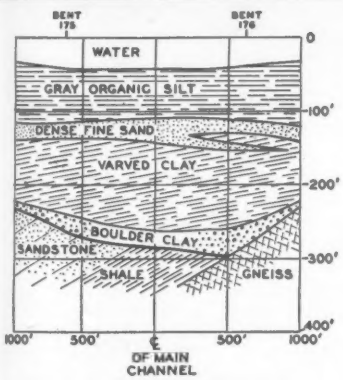
you can't see the toughest problem

Placing the foundations for the center cantilever span of the $60-million Tappan Zee Bridge was a major construction triumph! Featuring buoyant concrete caissons, this famous structure carries the New York Thruway 2.8 miles across the Hudson River from Nyack to Tarrytown.

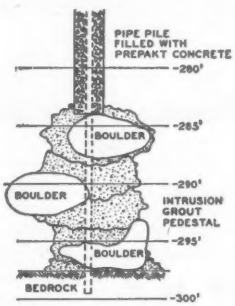
Substructure design called for 30-inch pipe piles to take part of the dead load and all of the live load, but unusual subsoil conditions (diagram) caused unprecedented problems. Boulders and weak bedrock prevented firm pile bearing; 260 to 300-foot piles made tremie concreting impractical. When these conditions were encountered, INTRUSION-PREPAKT was called in.

After airlift mucking, all 146 piles were filled with PREPAKT concrete made by consolidating preplaced aggregate with INTRUSION grout. This was followed by drilling, washing and INTRUSION grouting the area below the piles to provide necessary point-bearing for the piles. This consolidated the seamy gneiss and decomposed sandstone producing a direct, strong connection to bedrock for piles stopped by boulders.

Modern I-P techniques thus were vital to the success and economy of the unique Tappan Zee foundations. When you encounter difficult foundation problems, contact: INTRUSION PREPAKT, INC., Room 568-F, Union Commerce Bldg., Cleveland 14, Ohio. In Canada: INTRUSION-PREPAKT, LTD., 159 Bay St., Toronto, Ontario.



Subsoil profile at Tappan Zee site.



Pedestal build-up with INTRUSION grout supports piles halted above bedrock by boulders. Piles were filled with PREPAKT concrete when great length made other methods impractical.

INTRUSION-PREPAKT, INC.

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Intrusion and Prepakt are trade marks of Intrusion-Prepakt, Inc., whose methods and materials are covered by U. S. Patents Nos. 2313110, 2655004, 2434302 and others, also patents pending.

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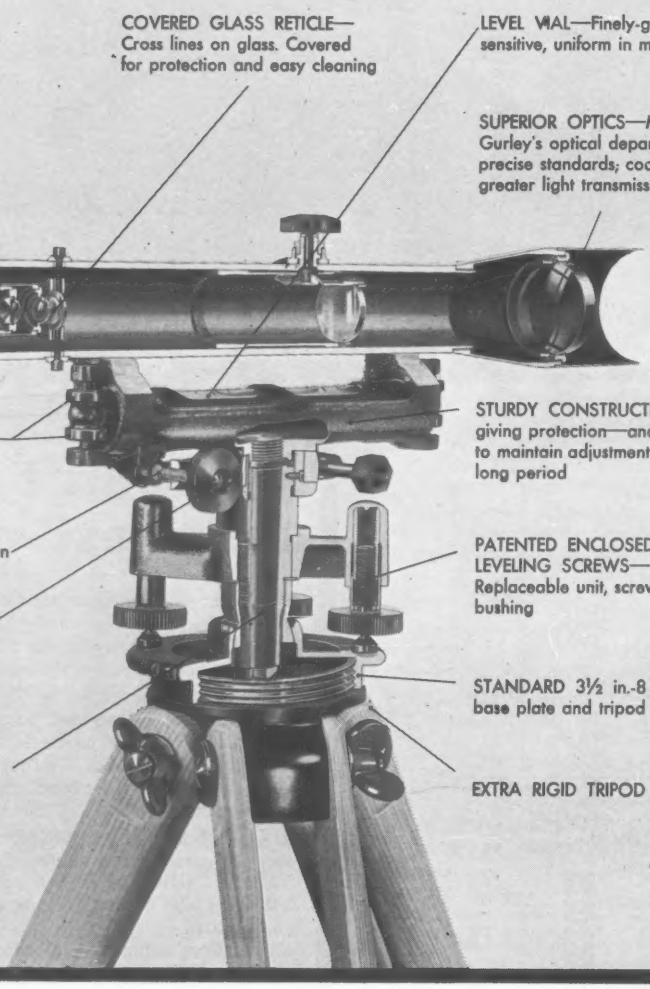

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Waiver of Requirement for Extra Work Orders

The Connecticut Supreme Court has ruled that an owner, by directing a contractor to perform work not called for by the contract, waives the requirement of a written order for extra work.

The ruling stemmed from a contract entered into on May 13, 1950, between Wexler Construction Co., Inc., and the Housing Authority for the town of Norwich, for erection of a moderate rental housing project, in accordance with certain plans and specifications for a contract price of $466,809, subject to additions and deductions. The contract provided that work should be started on May 18, 1950, and that the project, exclusive of landscaping, should be completed in 150 days, and the landscaping in 40 days thereafter.

On or about May 13, 1950, the Wexler Co., as prime contractor entered into a contract with Candor Construction Co., wherein the latter, as subcontractor, agreed to supply all labor, material and equipment necessary to perform the excavation and site development work, in accordance with the plans and specifications furnished by the Housing Authority to the prime contractor, all of which work was to be done for a contract price of $44,000, subject to additions and deductions.

The prime contractor and the subcontractor commenced work under the contracts on or about May 18, 1950. As the work progressed, it became apparent that the plans and specifications for the excavation and site development work had been prepared without any clear idea either of the results sought to be accomplished or of the conditions which would result if the plans and specifications were carried into effect. It became necessary, therefore, to redesign the work on a day-to-day basis during the construction. Consequently, the work as completed was of an extremely costly nature. In addition, the inability to develop a suitable comprehensive plan resulted in a constant stopping and starting of the work. Finally, on or about Dec 19, 1951, it became necessary to stop the work completely. As of then, the excavation and site development work for a major portion of the site had been completed in accordance with directives given by the agents of the Housing Authority to Wexler who in turn gave the instructions to Candor, the subcontractor.

When the work was stopped, a substantial amount of the corrective work remained to be done.

On or about Mar. 12, 1952, the Authority requested the prime contractor to submit its final periodical payment estimate. On that date all of the work to be performed by the prime contractor under its contract of May 13, 1950, except the site development, had been duly performed and completed. On April 30, 1952, Candor, the subcontractor, submitted its claim to the prime contractor and agreed not to enforce collection of its claim against the prime contractor except from the proceeds of any recovery that the prime contractor might obtain from an action brought by it against the Housing Authority in behalf of the subcontractor.

The excavation and site development work done by Wexler and Candor bore no recognizable resemblance to that called for by the original plans and specifications and was performed under conditions not contemplated by anyone at the time the contract of May 13, 1950, between Wexler and the Housing Authority, was entered into, nor were the payment provisions of the contract properly applicable to the excavation and site development work actually done. The price bid for this part of the work was $97,794.54 while the subcontractor claimed that the fair and reasonable value of the work that he was forced to do was $276,466.81, and the action was brought to recover the sum of $178,672.27, the difference between the contract price and the fair and reasonable value of performing the work.

The trial court dismissed the action on the ground that the contract contained a provision to the effect that no extra work would be paid for or allowed unless approved in writing. This judgment was reversed by the appellate court[1], the appellate court holding that directing the contractor to perform work not called for by the contract constituted a waiver of the contract requirement of a written order for extra work.

The appellate court also held that the agreement between Wexler and Candor, that the latter would not enforce the collection of his claim against Wexler except from the proceeds of any recovery by the prime contractor in the suit brought by it in behalf of the subcontractor, did not diminish the liability of Wexler to Candor, and, that under the circumstances of the cases, the prime contractor was entitled to recover the difference between the contract price of doing this part of the work and the fair and reasonable value of what was done.

(1) Wexler Construction Co. v. Housing Authority, 128 A. 2d 540, Supreme Court of Errors of Connecticut, Dec. 27, 1956.

NO RECOVERY

Failure of performance defeated federal claim

A contractor who has not substantially performed his contract cannot recover the balance of the contract price. And, according to the New Jersey Supreme Court, a creditor of the contractor has no more right to the money than the contractor has. The background of the case was this:

On August 19, 1953, Leone Construction Company entered into a contract with Damato for the erection of a gas station. The total contract price including extras amounted to $27,961.10, of which sum Damato paid Leone the sum of $18,827. The contractor abandoned the job on March 5, 1954. During the progress of the work several subcontractors served notice of intention to file mechanic's liens covering money due them for having performed part of the work.

Before the job was finished, the site of the gas station was condemned so as to permit the construction of the New Jersey Turnpike. In order to clear the title to the property, the owner agreed to hold certain monies in escrow to satisfy the subcontractor's claims upon which they agreed not to file any mechanic's liens. The owner made an application to the court to deposit such money with the court. The United States Government intervened, claiming it was entitled to this money since the contractor had failed to turn over to the government withholding taxes. The trial court rendered a verdict in favor of the owner on the basis that since the contractor had not substantially performed the contract it was not entitled to any further payments and there was nothing that the government could have a lien on. This judgment was affirmed by the appellate court.[1]

The appellate court stated: "Partial performance of an entire and indivisible contract by one of the parties does not generally entitle him to performance of the contract by the other party nor warrant a partial recovery of the consideration unless there has been a substantial performance. If Leone sub-

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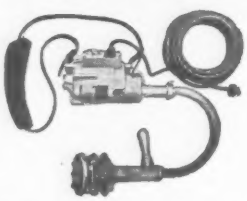

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stantially performed his contract, even though he has failed in some minor particulars, he is entitled to recover the contract price less what will be a fair allowance to the owner to make good the defects in the performance of the contract. R. Krevolin & Co., Inc., v. Brown, 20 N.J. Super. 85, 89 A. 2d 255, 258 (App. Div. 1952).

"3 Williston on Contracts (rev. ed.), sec. 805, p. 2262, reads as follows: 'Where the rule of substantial performance prevails, it is essential that the plaintiff's default should not have been willful; and the defects must not be so serious as to deprive the property of its value for the intended use nor so pervade the whole work that a deduction in damages will not be fair compensation.'

"Here the finding of the trial judge that there was no substantial performance was amply justified by the facts. Nor can the United States find any comfort in the operation of the gas station by Damato for a period of time in its incomplete state. In the light of the circumstances, this cannot be deemed either an acceptance or a waiver."

(1) Damato v. Leone Construction Co., 125 A. 2d 302, Superior Court of New Jersey, Sept. 4, 1956.

Right to Claim Fraud Held Waived by Owner

An owner may avoid his agreement with a contractor by showing that he was fraudulently induced to enter the contract. But the right to that claim may be waived by the owner and, as the following case illustrates, a court may rule that the actions of the owner spell out such a waiver.

The purchaser of a house that was to be built brought an action against the contractor for a return of the deposit payment and for punitive damages based upon the claim that the contractor induced the purchaser to contract for the purchase of the house that was to be built on the representation that the house would be built and delivered within sixty days. Construction of the house did not commence until about three months after the contract was signed.

The trial court granted the purchaser judgment both for a return of the deposit and punitive damages. The trial judge dismissed the judgment as to punitive damages. Both parties appealed. The appellate court[1] reversed the judgment of the trial court and directed a new trial. This decision was reached because the court held that there was some basis to the contractor's contention that the purchaser had waived the right to bring an action based on fraud.

The contract was entered into on July 14, 1954 and work did not start until October 1954. The buyer visited the site of the work from time to time and as late as May 1955 gave the contractor time to complete the house but fixed no specific time for its completion. Under such circumstances, the contract was modified so as to give the contractor a reasonable time in which to complete the house and whether or not the contractor completed the house within a reasonable time was a matter of fact to be determined by the jury at the new trial.

The appellate court stated: "A party to an executory contract who learns that he has been induced by fraud to enter into the contract and then insists on performance by the other party, waives any right of action for the fraud. By urging that the other party proceed with performance a new contract is made."

(1) Simon v. Rossier, 127 A. 2d 394, Municipal Court of Appeals for the District of Columbia, Dec. 6, 1956.

Contractor's Recovery On Ambiguous Contract

Ambiguous provisions in a construction contract are generally construed most strongly against the party who drew the contract. If the ambiguity relates to what items of work are included in a contract drawn by the owner, the contractor may perform the disputed work under protest and then seek to recover extra compensation.

Such was the situation in a New York case involving a contract for rehabilitation of the State Capitol Building. After the work was started, a dispute arose as to whether the contract covered an item of work the state called on the contractor to perform. Under protest, the contractor complied with the request but he refused to accept the final payment when offered because the contract contained a provision to the effect that acceptance of the final payment would release the State of all claims. The contractor then brought an action to recover for the performance of certain work which he claimed he was not required to perform under the contract.

The main dispute was over the work of refinishing the entire wood ceiling of one room. The dispute arose over conflicting provisions of the specifications. The agreement was on a printed form with the blanks filled in on the typewriter; the general conditions were

bring "cost-per-yard"

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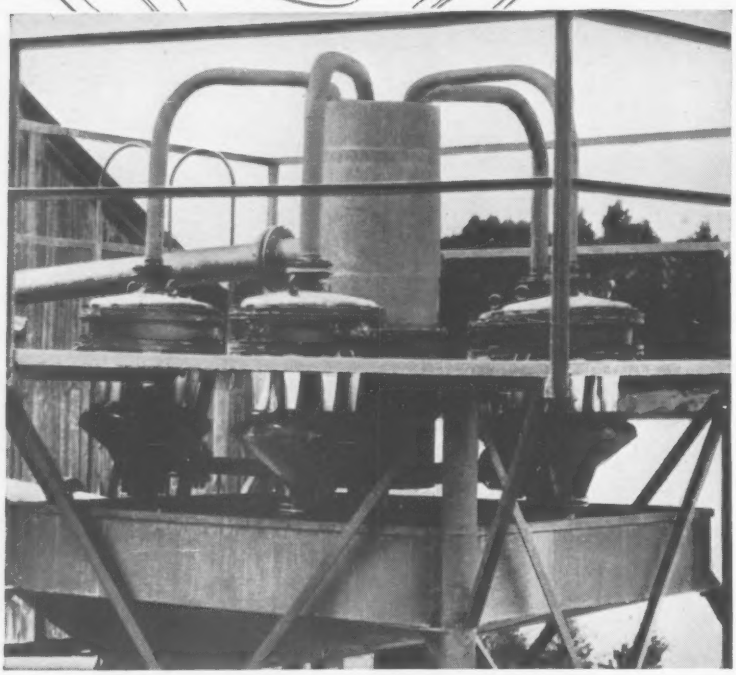

Bavarian china has long been known for its excellence of craftsmanship, design and quality . . . and practically every woman's dream is to someday possess this fine china.

The beginning of this exceptional china is superior kaolin, such as produced at Dorfner, Bavaria, near Nuremberg.

In the production of kaolin, a fine white clay, as well as different fillers used in the manufacture of porcelain china, Dorfner uses four batteries of P-50 DorrClone units. Each of these batteries contains eight 2-inch diameter P-50 porcelain DorrClone units, which make a separation at approximately 15 microns at a feed pressure of 25 psi. The present plant capacity is 100 cubic meters per hour or 440 gpm. The DorrClone units were supplied by D-O's Associate Company in Wiesbaden, Dorr-Oliver G.m.b.H.

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printed; the specifications were printed in parts and mimeographed as to other parts; the adenda were mimeographed. The printed forms were those in general use by the State for its construction contracts and the typewritten and mimeographed parts contain the matter particularly applicable to this contract.

As part of the specifications, there was included a mimeographed section, 19A, entitled "Mill & Cabinetwork". It called for the rehabilitation of the entire wood ceiling in room No. 202 and it set forth the particulars as to inspections and repair of beams, moldings and panels and other work. Immediately following this provision of the specifications was an addendum to this effect: "Disregard the entire section 19A as contained in the specification and use the following in lieu thereof." The new addendum that followed completely omitted any reference to the work on the wood ceiling. The contract drawings, however, showed complete details of the wood ceilings as to beams, moldings and panels and other work referred to in the original specification numbered section 19A.

When the contractor was directed to do the wood ceiling work, he refused to do it, contending that the specifications omitted this part of the work. The State Architect contended that since the plans gave details as to how this work was to be done and as the contract gave the architect the power to decide the true meaning of the drawings or the specifications on any point concerning the work to be done, and since he determined that the contractor was required to do this work under the contract, it was up to the contractor to perform it.

The court granted the contractor a recovery.[1] The actual cost of doing the work was $1,000 and to this amount the judgment added 10%, or $100, to cover overhead and profit.

The following principles of law guided the court. A discrepancy in a contract exists where different parts of the same agreement or different instruments are in conflict with one anothe another.

Where there is uncertainty, conflict or ambiguity in an instrument, it is to be construed most strongly against the party who drew it, and most favorably to the other party. The language of a business contract must be construed in the light of what a business man would reasonably expect to give or receive, to perform or suffer, under its terms.

(1) Batash v. State of New York, 154 N.Y.S. 2d 317, Court of Claims of New York, July 24, 1956.

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Special bodies fit readily
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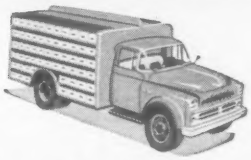

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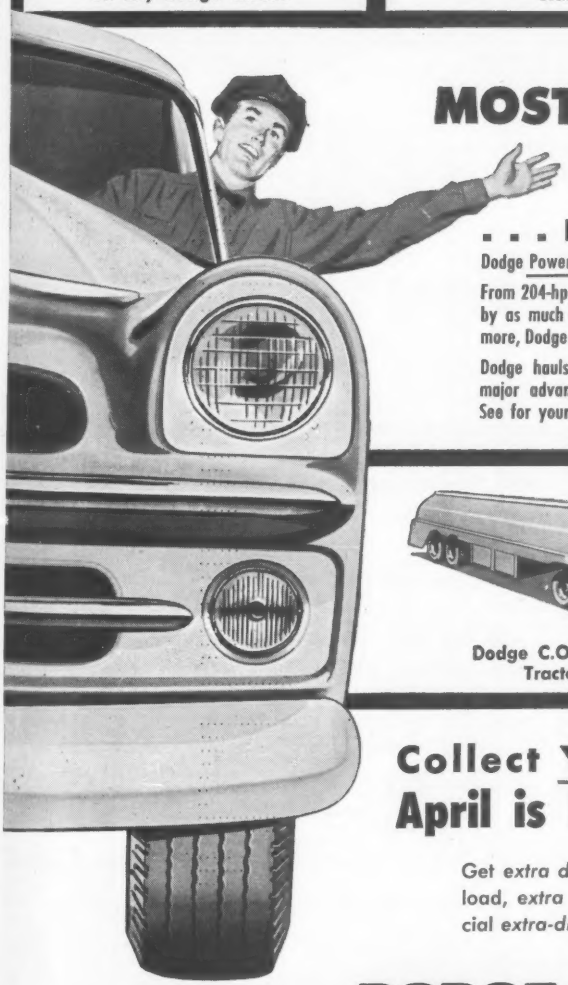
with Beverage Body



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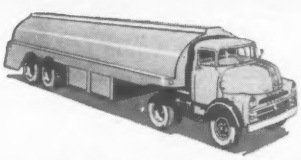
Dodge hauls more payload, too . . . up to one-third more. And Dodge offers major advantages in driving ease, cab comfort and prestige-building good looks. See for yourself. Your Dodge dealer has a Power Giant to meet every trucking need.



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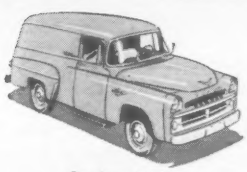

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Two-Tube Highway Tunnel in Pittsburgh

Fort Pitt Tunnel for the Pennsylvania Department of Highways drew four bids ranging from $10,764,581 to $12,762,683. This 3,614 lin ft twin-tube tunnel with rock section will carry traffic on Penn-Lincoln Parkway under Mount Washington in Pittsburgh, Pa. L. J. Curran is district engineer in Pittsburgh.

The successful bid from Merritt-Chapman & Scott Corp., New York, is 9.5% below the second low bid and 15.7% below the high bid.

Each tube is designed for a two lane 24 ft roadway with a 2 ft 9 in. service and "refugee" walk and 1 ft curb offset on one side and a 1 ft curb with 7 in. offset on the other side. Roadway pavement is brick on a 10-in. reinforced concrete base course.

The reinforced concrete walls and ceilings supported by steel arch ribs, columns and spreaders, are lined with vitreous tile.

Tunnel work includes the foundations of two ventilation buildings, approaches, an emergency ramp, sanitary sewerage, encased electrical conduits and boxes and a drainage system.

Electrical work for tunnel lighting, ventilating systems, traffic signals, the two portal ventilation buildings and ventilating work will be let in three future contracts.

The contract specifies a minimum of equipment: two 1.5 cu yd and two 2.5 cu yd power shovels, two 10 ton power rollers, one 5 to 10 ton tandem power roller and one 3 to 6 ton power roller, one 27E paving mixer or transit mix, four 14S construction mixers or transit mix, two drill jumbos, two pneumatic riveter and drills and sufficient compressors, jackhammers and wagon drills and pumps.

Tunnel excavation priced $14 per cu yd includes temporary steel and timber supports, temporary drainage and the disposal of materials on the embankments and the waste of rock.

Concrete class AA in tunnel lining, ceiling, sidewalks and curbs requires a minimum compressive strength of 3,000 psi in seven days. Class A concrete in retaining walls and copings must test at 2,500 psi and class B concrete at 2,000 psi.

Structural steel for tunnel support must conform to ASTM Designation A-7. Black steel pipe, ASTM Designation A-120 will be used for the 4 in. gas line.

The brick pavement will be de-aired vitreous fire clay brick, 3½ x 4 x 8½ in. The price, of $9 per sq yd, includes bituminous prime coat on the concrete base course, canvas duck strips to cover expansion joints in the concrete base and premoulded cork joint filler. Lane markers are white vitreous glazed brick.

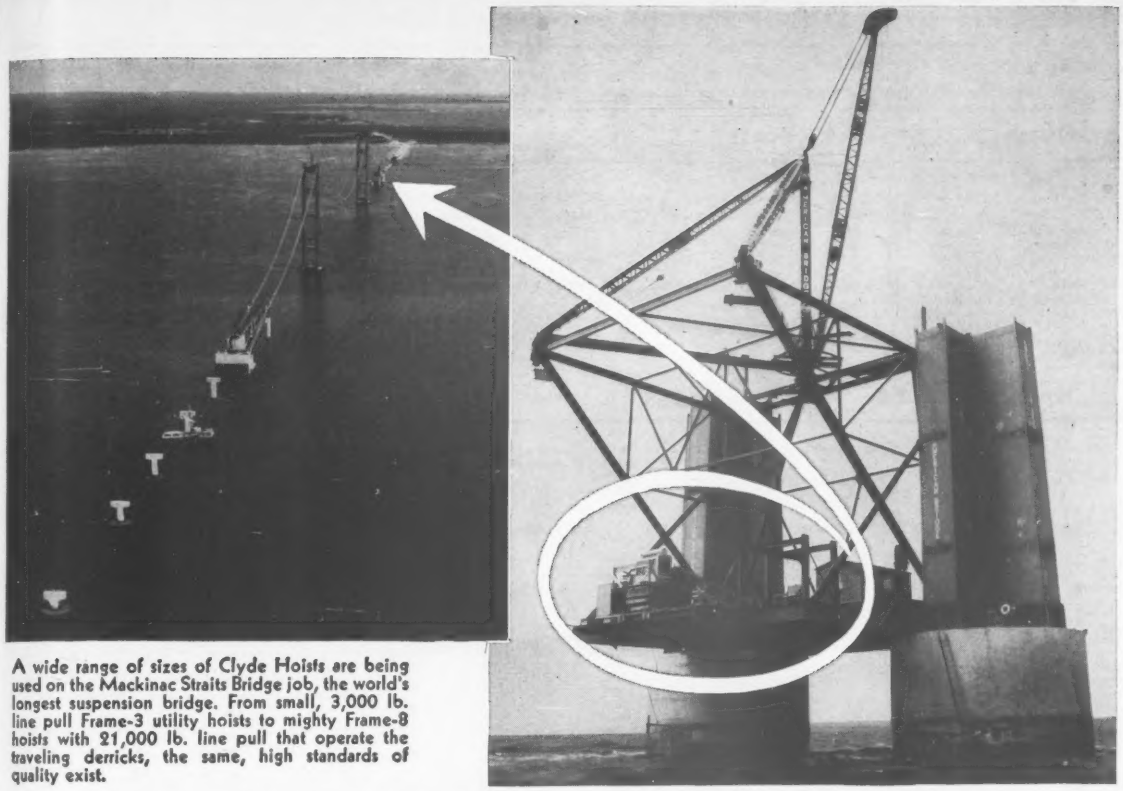
Minimum wage rates are $3.55 for structural iron workers, $3.45 for reinforcing iron workers, $3.20 for concrete paving mixers and backfillers, $3.075 for cement masons, $2.84 for miners and drillers, $2.63 for curb setters, brick and block pavers and tunnel men, $2.20 to $2.43 for truck drivers and $2.08 for common laborers.

The four bidders include:

1C	Merritt-Chapman & Scott Corp., New York	$10,764,581
2	Booth & Flinn Co., Pittsburgh, Pa.	11,888,404
4	S. A. Healy Co., White Plains, N. Y.; James McHugh Const. Co., Chicago, Ill. Allegheny Contr. Industries, Inc., Pittsburgh, Pa.	12,762,683

Bids: 3-1-57 Items	Unit	Quantity	Unit Prices 1 C	2
Exc, cl 1, South Portal	cy	301,553	$2.50	$4.00
North Portal	cy	51,772	3.50	10.00
tunnel	cy	224,157	14.00	16.00
cl 2	cy	7,186	6.00	20.00
Subgrade	sy	334	1.00	1.00
special, 6"	sy	12,317	1.00	1.00
12"	sy	17,568	1.50	2.00
Shoulders	lf	788	1.50	1.00
stabilized	lf	618	3.00	5.00
Base crse, cr aggr, type A 10"	sy	334	2.00	2.00
Aggr, coarse, 2B	cy	169	5.00	6.00
Base crse, RCC, type A, 10"	sy	18,524	8.50	6.50
Pvmt, RCC, 9"	sy	3,602	8.25	6.50
10"	sy	6,706	8.50	7.00
Bit surf crse, ID-2, 2½"	sy	327	2.00	3.00
JA-1, 3"	sy	80	3.00	10.00
Conc, cl A	cy	1,444	75.00	50.00
cl AA	cy	57,006	33.20	35.00
tunnel ceiling	cy	3,968	55.00	70.00
cl B	cy	741	70.00	50.00
Reinforcement bars	lb	2,122,900	0.15	0.18
Steel wire fabric	lb	429,000	0.25	0.15
Str stl, fabr, tun supt	lb	8,500,000	0.18	0.15
other than tun supt	lb	22,950	0.30	0.30
Bulb angles, rdy ceiling	lb	293,878	0.12	0.20
Railing, aluminum	lf	195	18.00	10.00
Bkfl for struct, stone	cy	146	7.00	15.00
Waterproof, 2 coat painted	sy	18,439	1.00	1.00
Pvmt, CC, cl B, 6", for stream beds	cy	1	100.00	200.00
MH, type A	ea	18	550.00	400.00
type B	ea	2	2,000	1,000
type C	ea	1	2,700	1,200
type D	ea	1	3,500	4,000
type D w/sump, 2	ea	1	4,000	5,000
type J	ea	2	900.00	400.00
type K	ea	1	1,500	400.00
type M	ea	2	2,500	1,000
type N	ea	20	700.00	600.00
Inlet, 4'	ea	9	550.00	600.00
4' w/sump, 2'	ea	1	700.00	400.00
4', special	ea	7	600.00	500.00
alt grates	ea	5	700.00	500.00
6'	ea	2	750.00	500.00
type H	ea	1	350.00	600.00
4', spl, alt grates w/sump, 2'	ea	1	800.00	600.00
4', alt grates	ea	2	650.00	400.00
MH, rebuilt	vf	4	120.00	20.00
Castings, reset	set	3	75.00	20.00
CIP, mech jt, cmt lin, 4"	lf	208	5.00	10.00
6"	lf	132	7.00	10.00
8"	lf	4,416	7.00	10.00
RCCP, open jt ,or VCP, ES, open jt, or CMP, asph ct, perf, 18"	lf	578	9.00	5.00
24"	lf	204	12.00	7.00
30"	lf	146	16.00	10.00
CMP, asph ct, 24"	lf	164	10.00	7.00
RCCP, 18"	lf	780	9.00	6.00
24"	lf	272	12.00	8.00
30"	lf	4	20.00	15.00
RCCP, VC lin, 36"	lf	434	30.00	25.00
VCP, 4"	lf	52	2.00	1.00
6"	lf	252	3.00	1.00
VCP, 8"	lf	370	5.00	1.50
6", ES	lf	20	4.00	1.50
8", ES	lf	572	5.00	2.00
18", ES	lf	80	10.00	7.00
in conc cradle	lf	6,811	13.00	14.00
Drains, acid water incpt	lf	2,000	4.00	7.00
Undrdr, fndn, 6" pipe, type A, Bkfl, type II	lf	4,920	4.00	2.50
Undrdr outlets, pipe 6"	lf	30	5.00	2.50
Drain, subgrade	lf	400	1.00	2.00
Gutter, CC, type B	sy	318	7.00	7.00
type C	sy	44	8.00	9.00
Curb, CC, type B	sy	3,249	3.00	4.00
Sidewalks, CC	sy	510	4.00	5.00
Guard fence, type 1-C	lf	800	1.35	1.50
End anchorages, type C	ea	8	150.00	200.00
Connections, guard fence	ea	2	85.00	100.00
Gas line, 4"	ea	1,086	7.00	4.00
Septic tank & siphon	ls	job	2,000	1,500
Sand filter bed	ls	job	2,500	2,500
Tubing, copper, type K, 2"	lf	8	5.00	10.00
Protect working area	ls	job	15,000	20,000
Tapping sleeve viv, 8x8", & vlv box	ea	1	300.00	500.00
Curb stop & curb box, 2"	ea	2	200.00	60.00
Gate viv & box, 4"	ea	7	200.00	100.00
6"	ea	3	225.00	150.00
8"	ea	1	250.00	200.00
Fire hydrant, vert opening 5¼"	ea	2	400.00	300.00
flush type	ea	7	1,350	300.00
Pipe, wi, 3"	lf	150	8.00	10.00
Drains, ACP, 3"	lf	5,635	2.00	2.40
Ceiling hangers, stn stl	ea	884	85.00	50.00
Drain assemb, formed, open joint	ea	140	160.00	250.00
Cmt for press mortar surf	bbl	850	40.00	50.00
for press mortaring	bbl	17,450	12.00	12.00
Holes, drill in rock or masonry	lf	12,955	3.00	3.00
Pipe, stl, for mortaring	lb	32,617	0.40	0.50
CB, CI, roadway	ea	36	250.00	450.00
Traffic treadle frames, I	ls	job	1,000	500.00
Transv drains, CIP, 6"	lf	540	5.00	15.00
VCP, ES, 6"	lf	4,054	2.50	7.00
Drain, continuous stone, No. 3A aggr	lf	14,154	1.00	3.00
Metal abrasive nosing	lf	113	10.00	3.00
Piping, CO analyzer	lf	1,200	3.00	1.00
Base & gutter	lf	13,734	1.20	1.00
Ceiling cove	lf	13,734	1.00	1.00
Mortar bed for tile	sf	158,646	0.25	0.15
Tile, cer vit gl, 4¼x4¼", ceiling	sf	187,745	1.70	1.63
walls	sf	158,646	1.90	1.84
extra	sf	174,500	0.10	0.10
Handrail, vit enam stl, sidewalk	lf	7,067	10.00	3.00
for replacement	lf	100	10.00	2.00
passageways	lf	24	13.00	4.00
stair No. 3	lf	27	4.00	5.00
Signs, vit enam stl	ls	job	3,520	1,200
Doors, hol met, tun only	ea	7	200.00	500.00
Doors & frames, bronze, for fire ext niches	ea	52	400.00	500.00
for tun air supply niches	ea	4	500.00	550.00
Bronze	lb	1,134	6.00	6.00
Sheet stl for panning	lb	6,450	0.25	3.00
Metals, misc	lb	272,800	0.40	0.40
Top soil, 4", f&p	sy	8,500	1.00	0.50
Bulkheads, air duct	ea	2	600.00	200.00
Waterstops, copper	lb	17,231	2.00	2.50
Pvmt, brick	sy	18,524	9.00	9.00
Lane marker, brick	lf	7,330	1.00	3.00
extra	ls	job	100.00	500.00
Conduit, stl, ¾"	lf	1,800	1.00	1.00
1"	lf	1,150	1.20	1.00
1½"	lf	28,800	1.50	1.30
2"	lf	320	2.50	2.00
2½"	lf	300	3.00	3.00
3½"	lf	160	5.00	4.00
5"	lf	160	7.00	6.00
VC, w/8 holes, 3¼" sq 36' long	lf	7,200	4.00	3.00
AC, 2"	lf	5,400	1.35	3.00
exp jt & bond jumpers, 1½"	ea	568	18.00	15.00
Cable, bare copper, 4/0	lf	20,000	1.00	0.80
#2	lf	150	0.50	0.50
Connector clamps, type A	ea	856	7.00	6.00
type B	ea	292	14.00	11.00
type C	ea	26	7.00	5.00
type D	ea	60	15.00	12.00
Boxes, SL-4	ea	1,096	42.00	35.00
extra	ea	52	20.00	15.00
emerg alarm, excl bronce cover assemblies	ea	26	90.00	80.00
junction, type A	ea	40	12.00	10.00
type B	ea	40	11.00	10.00
Frames & cov for pull box	ea	8	275.00	250.00
Pulling-in irons	ea	60	7.00	5.00
Ground bars, copper	ea	26	10.00	10.00
Exist light stand & bases, remove	ea	8	150.00	125.00

Time to complete: 1,040 calendar days
Liquidated damages: $1,000 per day



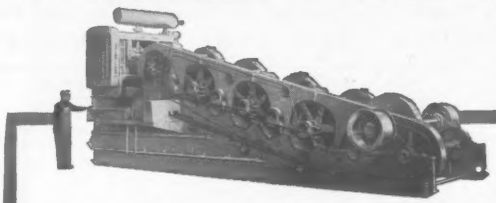
A wide range of sizes of Clyde Hoists are being used on the Mackinac Straits Bridge job, the world's longest suspension bridge. From small, 3,000 lb. line pull Frame-3 utility hoists to mighty Frame-8 hoists with 21,000 lb. line pull that operate the traveling derricks, the same, high standards of quality exist.

CLYDES HANDLE CONSTRUCTION MATERIAL ON WORLD'S LONGEST BRIDGE!

From the first preliminary engineering sketch to the traditional ribbon cutting ceremony that will open the Mackinac Straits Bridge to traffic, quality is a predominating factor. Quality in engineering . . . in workmanship . . . in materials and equipment is a necessity for the successful completion of any construction project.

For the utmost quality in hoisting equipment, Clydes are your best bet. Clyde hoists offer more design advantages than any other hoist in the field . . . advantages that assure safer, easier and more economical operation. Advantages that mean long life dependability and stamina for uninterrupted service, job after job, year after year.

Why not write for bulletins and find out for yourself why Clyde hoists excel?



CHECK THESE QUALITY FEATURES—

- Ball and roller bearings throughout reduce maintenance and power costs.
- Lock-in, lock-out pawls afford safer load handling.
- Internal, expanding band friction clutches give smooth, fatigue-free operation.
- Chain tightener permits fast, simple adjustment without removing guard.
- Easily actuated, generous size brakes assure positive, accurate load control.

HOISTS • DERRICKS • WHIRLEYS • BUILDERS TOWERS • CAR PULLERS • UNLOADERS • ROLLERS

CLYDE

CLYDE IRON WORKS, INC.

Established in 1899

DULUTH 1, MINNESOTA

A SUBSIDIARY OF BARIUM STEEL CORPORATION

Materials and Labor Prices — Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, Mar 21; Next, Apr 18
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Mar 28; Next, Apr 25
- Wage Rates, Building Board, Lath, Insulation: Last, Mar 28; Next, May 2
- Cement, Aggregate, Ready-Mixed Concrete, Asphalt: Last, Apr 4; Next, May 9

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$5.00	$4.85	$5.075	$10.85	.....	$101.50	$120.00	$6.35	$8.775	$6.025	.....
Chicago Area	5.00	4.85	5.075	10.85	$5.90	101.50	120.00	6.35	8.775	6.025	.....
Pittsburgh Area	5.00	4.85	5.075	10.85	5.90	101.50	120.00	6.35	8.775	6.025	$13.10
Buffalo Area	5.00	4.85	5.075	10.85	5.90	101.50	120.00	6.35	8.775	6.025	13.10
Cleveland	.....	.....	5.075	10.85	5.90	.....	.....	.....	.....	.....	13.10
Youngstown Area	.....	.....	5.075	.....	.....	.....	.....	.....	8.775	.....	.....
Geneva	5.00	4.85	5.175	.....	.....	.....	.....	.....	.....	.....	.....
Los Angeles	5.70	.....	5.775	.....	5.90	.....	.....	.....	8.775	.....	.....
Pueblo	.....	.....	.....	.....	.....	.....	.....	6.35	8.775	6.025	.....

IRON AND STEEL PRODUCTS—F.O.B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Rail steel	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	EXPANDED METAL LATH Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq ft., carload lots fob mill
Atlanta	$8.44	....	$8.90[e]	$52.00	$57.00	
Baltimore	8.67	8.10[j]	....	42.00	46.50	
Birmingham	8.20[l]	8.07[t]	8.07[t]	65.00[p]	71.00[p]	
Boston	9.10[a]	8.67	8.67	49.00	52.50	
Chicago	8.35	6.81[gu]	6.81[gu]	52.00[‡]	63.00[‡]	
Cincinnati	8.89[ak]	8.43[rs]	....	43.50[mn]	48.00[mn]	
Cleveland	8.57	6.79[c]	....	43.50[‡]	48.00[‡]	
Dallas	9.95	8.50	8.50	57.00	62.00	
Denver	9.80	8.45[c]	....	57.00[n]	63.00[n]	
Detroit	8.74	8.13	....	56.00	63.00	
Kansas City	8.87[a]	8.74	....	49.00	60.00	
Los Angeles	9.00[fd]	7.35	....	58.50	64.50	
Minneapolis	8.64[d]	8.91[b]	8.91[b]	41.50	46.00	
Montreal	8.25-900C/8.30-8.70A	7.75/9.95[i]	7.75/9.95[i]	65.70[Ak]	70.20[A]	
New Orleans	....	7.70[aks]	....	45.50	50.00	
New York	8.91	7.85[wy]	7.85[wy]	50.50[n]	57.00[no]	
Philadelphia	8.04	7.14	....	42.50[‡]	47.00[‡]	
Pittsburgh	7.43	6.57	....	42.50	47.00	
St. Louis	8.67[z]	8.05[c]	8.05[c]	60.00[l]	62.00[l]	
San Francisco	9.15	9.10[j]	....	47.50	53.00	
Seattle	9.35	8.60[c]	....	62.00[nr]	68.00[nr]	
Toronto	8.75*	7.60	7.60	56.00[nq]	59.00[nq]	

Quantity extras, per cwt.: under 100#, +$9; 100-399#, +$6; 400-999#, +3.50; 1000-1999#, +1.00; 2000-4999#, base price; 5000-9999#, —10¢; 10,000-19,999#, —30¢; 20,000-39,999#, —50¢; 40,000# and up, —70¢

EXTRAS, per cwt.—*Quantity: less than 700#, +50¢; 700-1499#, +25¢; 1500-7999#, +10¢. *Size: #2, +2.50; #3, +1.40; #4, +1.00; #5, +70¢; #6, #7, #8, #9, #10, #11, +60¢. *Bending: heavy, +60¢; light, +$2 (except in New York City and surrounding metropolitan area where bending must be done on the job). *Engineering (details and placing from designs by others): over 500 tons, +45¢; 200-500 tons, +50¢ but not over $4500; 20-200 tons, +60¢ but not over $2000; 5-20 tons, +70¢ but not over $240; under 5 tons, +85¢ but not over $70. *Design only: +60¢.

4 × 16 in., No. 5 & 10 wire—Joliet, Ill., Donora, Pa., Monessen, Pa.: $3.78
4 × 12 in., No. 8 & 12 wire—Joliet, Ill., Donora, Pa., Monessen, Pa.: $3.50
6 × 6 in., No. 6 & 6 wire—Joliet, Ill., Donora, Pa., Monessen, Pa.: $3.95

*‡ Delivered *a 2000-9999# *b 10,000-19,999#, fob city *c 20 tons or over *d 10,000-19,999# *e Intermediate struct'l *f Incl. delivering in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add dominion, provincial and municipal sales taxes *j Intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p del. of 500 sq. yd. or more. *q 3 lb *r 2% off for cash *s 2,000-4,999# *t add 15¢ del. *u add 6.25¢ switch *v Incl 15¢ del. *w 5-10 tons *x add 5¢ switch *y add 30¢ del. *z add 10¢ del. *A American made. *C Canadian made. *** Aver. of Canadian & American.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEX[a]	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 6" Pr Cl. 150	ASBESTOS CEMENT PIPE 12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	VITRIFIED SEWER PIPE std. 12 in. s.s.	VITRIFIED SEWER PIPE 24 in. ds.	VITRIFIED SEWER PIPE 36 in. ds.	CLAY DRAIN TILE ASTM C4-24 PER 1,000 ft., carload lots, f.o.b. 6 in.	CLAY DRAIN TILE 8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	CONCRETE SEWER PIPE 24 in.
Atlanta	123.7	$1.64	$2.65	$.58	$1.00	$4.40	$14.50	$277.00[s]	.....	$1.55[m]	$4.40[m]
Baltimore	133.3	1.64	2.46	.665	1.28	5.08[s]	12.71	187.80	$289.20	1.01	2.75[m]
Birmingham	119.0	1.64	2.68	.46	.86	3.70[w]	10.37[w]	260.00[‡]	440.00[‡]	1.25[m]	2.75
Boston	136.2	1.66	2.46	.812[qrt]	1.566[qrt]	6.525[qrt]	.....	215.40[r]	330.60[r]	1.56[mq]	3.47[mq]
Chicago	134.1	1.64	2.46	.93[m]	1.78[m]	7.52[m]	21.16[m]	220.00[m]	330.00[m]	1.30	4.00
Cincinnati	128.7	1.66	2.55	.665[t]	1.282[5t]	4.905[t]	12.505[t]	240.00	370.00	.85[m]	3.25[m]
Cleveland	134.9	1. 66	2.55	.595[s]	1.201[5s]	4.725[t]	12.152[5t]	155.40[m]	240.60[m]	.85[m]	3.50[m]
Dallas	131.0	1. 66	2.80	.439	.799	4.00[b]	9.17[b]	.....	**.....	.65	1.88
Denver	141.4	1. 73	2.80	.47[n]	.84[n]	3.73[n]	.....	.....	**.....	.74[m]	2.50[m]
Detroit	135.3	1.66	2.55	.90	1.70	6.80	18.50	240.00[m]	370.00[m]	.95	3.82
Kansas City	131.7	1.66	2.55	.61	1.105	4.54	12.75	260.00	485.00	.90	2.90
Los Angeles	141.8	1.73	2.46	.74[l]	1.61[l]	6.42[l]	15.36[l]	360.00[l]	530.00[l]	1.12	3.32[f]
Minneapolis	143.1	1.68	2.68	.86[mo]	1.55[mo]	6.70[mo]	.....	.....	.....	1.76[h]	4.74[h]
Montreal	.....	....	....	1.07[u]	1.90[u]	6.80[u]	12.50[u]	.....	.....	1.17[h]	3.11[j]
New Orleans	126.5	1.64	2.68	.535	.93	5.44	.....	370.00[p]	580.00[p]	.85	2.90
New York	131.7	1.66	2.46	1.02	1.94	7.61	19.58	.....	.....	1.50	3.00
Philadelphia	131.0	1.64	2.46	.65	1.25	4.95[s]	12.65[s]	300.00[‡]	350.00[‡]	1.60[h]	3.95[h]
Pittsburgh	136.1	1.66	2.46	.465[m]	.864[m]	3.86[m]	9.78[m]	152.00	244.00	1.05[h]	2.50[h]
St. Louis	130.1	1.64	2.55	.50	1.08	4.45	10.80	180.00[l]	380.00[l]	1.45[il]	3.10[il]
San Francisco	141.8	1.73	2.46	.78[d]	1.69[d]	6.72[d]	16.36[d]	320.00[l]	560.00[l]	1.05[m]	3.30[m]
Seattle	142.2	1.73	2.46	.67[b]	1.33[b]	6.84	.....	220.00[c]	.....	1.05[k]	3.10[k]
Toronto	.....	....	....	.76	1.425	6.00	.....	157.00	280.00	1.02	3.57

*WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnote

Mill	2½ & 3 in. Butt Weld + Galv. %	2½ & 3 in. Butt Weld Black %	3½ to 6 in. Lap Weld + Galv. %	3½ to 6 in. Lap Weld Black %	8 in.	10 in.	12 in.
Lorain, Ohio	20.75	20.75	+4.00[a]	10.25[a]	+8.50[a]	10.25[a]	+8.50[a]
Aliquippa, Pa.	20.75	20.75	+14.50	4.25[a]	+5.75[d]	8.50[d]	+5.75[d]
Sparrows Pt., Md.	18.75	18.75			+21.50[ab]	+2.75[ab]	+21.50[ab]
Benwood, W. Va.	20.75	20.75	+0.75[a]	13.50[a]			
Youngstown, O.	20.75	20.75	+8.50[a]	10.25			
Indiana Harbor, Ind.	19.75	19.75	+9.50[a]	9.25[ab]			
Sharon, Pa.	20.75	20.75	2.50	2.50			
Wheatland, Pa.	20.75	20.75	2.50	2.50			
Etna, Pa.	20.75	20.75	7.00	8.50			
Fontana, Calif.	7.75	7.75	+10.50	+2.75[ab]			

[a] 3½ to 4 in. [b] Continuous [d] 6 in.

+Threaded and coupled. weld: 8 and 6 in.

*‡ Delivered. *a PRICE INDEXES for CENTRIFUGAL CAST IRON PIPE (Include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE $ PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 119.0; Burlington, N. J., 127.8. *b Extra strength ASTM C 200-44T *c 4-in., $130. *d SS361-A *e 30-in. *f 21 in. *g culvert pipe; reinforced, ASTM C 75-56 *h reinforced, ASTM C 75-41 *i reinforced, ASTM C 76-37 *j centrispun; no standard specs. in Canada *k 2% off for cash *l fob plant *m truck delivery *n LCL delivered, fob truck *o listed price based on LCL (no min.) *p freight allowed to destination in city *q ASTM C 13-40 *r CL fob origin, freight allowed *s 2 ft lengths *t 3 ft lengths *u CESA A 60-1941 specs. used *v standard strength *w ss; add 20% for d.s.

* WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft.(*based on approx. $200 per net ton): Butt Weld ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 6½¢; ¾ in., 9¢; 1 in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 78½¢. Lap Weld 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: Butt Weld—1 in. black, + 68.54, galv. + 95.77; 1¼ in. black, + 65.54, galv. + 95.23, 1½ in. black, + 61.79 galv. + 91.22; Lap Weld —2½ in. to 3 in. black + 67.95 galv. + 95 77; 4½ in. to 6 in. black + 84.74 galv. + 90.88 Add freight rates plus 3% transportation tax to get destination price.

Lima Type 1201 dragline equipped with an 85-ft. boom, dredging channel into Biscayne Bay at Ojus, Fla. Approximately 250,000 cu. yds. of sand and coral rock will be moved to complete this job.

LIMA dragline speeds dredging operation in Florida

This big Lima Type 1201, owned by L. C. Morris, Inc., of Miami, Fla., is making quick work of dredging a channel into Biscayne Bay. Day in and day out, their Lima takes fast, steady bites of sand and coral rock. It's the built-in quality extras—such as piston-ring-type dirt seals and retainers in crawler rollers... flame or induction-hardened moving parts for longer life . . . properly balanced weight for maximum efficiency . . . anti-friction bearings at all important points . . . oversize drums and sheaves for long cable life . . . and extra-wide, extra-long crawlers for greater stability—that result in big production with minimum repair and maintenance.

It will pay you to get the full story on Limas from your nearby Lima distributor, or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

COMPARE OTHERS WITH LIMA FOR QUALITY AND YOU WILL SPECIFY LIMA

Shovels . . . ½ to 6 cu. yds.
Cranes . . . to 110 tons
Draglines . . . variable
Smaller capacity models available on rubber

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LIMA SHOVELS • CRANES • DRAGLINES • PULLSHOVELS
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Construction Equipment Division—LIMA WORKS
OTHER DIVISIONS: Austin-Western • Eddystone • Electronics & Instrumentation • Hamilton • Loewy-Hydropress • Madsen • Pelton • Standard Steel Works

• $1,300,000, five-story municipal garage in Copley Square, Boston is one of **S. & A. Allen's** recent projects. It will take 800 cars off the streets of Boston.

"Construction Daily Helps Us Locate Jobs We Are Eager To Bid On"—

Says S. & A. Allen Construction C

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President Allen gets Construction Daily first thing every morning. After he has digested it, he routes it to his son, Edward E. Allen, vice president of the firm. Reports are then sent to the estimating department. Listen to what Ed Allen has to say: "We make constant use of the Daily as a source of planned construction projects, especially on private work. The Backlog of Proposed Work section is invaluable in this respect. This section by itself would make the Daily a sound investment. However, we also find the price reports and business condition reports useful, and make occasional reference to the tables showing volume of construction in each state."

The Construction Daily can help you build business, too. Published every working day of the year, it includes two separate publications — the Daily Newsletter and the Construction Reports. The Newsletter is a quick two or three pages of highspot news, newly announced bid dates, proposed new work reports, price information, economic news, reports from Washington and other fast-breaking news that keeps you a step ahead of your industry. The Reports section includes bids asked, low bids, and contract awards on more than $80,000,000 worth of business every day. It is the fastest, most complete system of reports on heavy construction in the nation.

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About S. & A. Allen Co. . . .

The S. & A. Allen Construction Co., was founded in 1916 by Samuel Allen. After World War II, his sons Alvin and Edward joined the firm as treasurer and vice president, respectively. Always a building contractor, the firm has expanded in the past decade into almost every phase of building construction. It has completed multi-million dollar contracts for schools, housing developments, industrial buildings, churches, theaters, recreation and community centers, military installations, retail stores and supermarkets.

Among the more recent contracts are the control tower at Logan International Airport, a community center in Brookline, Mass., Sharon Elementary School, the Electronics Building at Charleston Navy Yard, Old North Church in Marblehead, and a NIKE site at Hingham. The firm is presently inaugurating an aggressive promotion program, built around the Construction Daily, to attract new business to continue its growth.

Construction Daily
A McGRAW-HILL PUBLICATION

Dept. ENR 101 330 West 42nd Street New York 36, N. Y.

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

Mass., Weymouth—BA 4/15—Town, Bd. Sewer Comrs., J. W. Field, clk., 402 Essex St., sewer. $200,000. Plans deposit $10, refundable. Metcalf & Eddy, Statler Bldg., Boston, Mass., engrs. CD 4/6/55.

Connecticut—BA 4/17—State P. Wks. Dpt., 165 Capitol Ave., Hartford, placement of sand fill, West Silver Sands Beach, East Haven, Proj. BI-FC-11B. Philip W. Genovese & Assoc., 294 Elm St., New Haven, engrs. CD 3/28.

† Mass., Falmouth—QUARTERS—BA 4/18—U. S. Eng., 150 Causeway St., Boston, bachelor officers' quarters, Otis Air Force Base, ENG-19-016-57-189. $250,000-$350,000. Plans deposit $10. Desmond & Lord, 6 Beacon St., Boston, archts. CD 3/27.

† Me., Bangor—CHAPEL—BA 4/23—U. S. Eng., 150 Causeway St., Boston, Mass., chapel with educational wing, Dow Air Force Base, ENG-19-016-57-50, $300,000-$400,000. CD 3/29.

† Mass., Falmouth—REHABILITATION OF BUILDINGS—BA 4/23—U. S. Eng., 150 Causeway St., Boston, rehab. bldgs., Air Force Base, Air National Guard, ENG-19-006-57-194, $300,000-$400,000. Mead & Hunt, Inc., 2320 University Ave., Madison, Wis., archt.-engr., Joseph L. Paley, 105 Newbury St., Boston, consult. engr. CD 3/29.

† N. H., Portsmouth—CHAPEL—BA 4/23—U. S. Eng., 150 Causeway St., Boston, Mass., chapel with educational wing, Air Force Base, ENG-19-016-57-193. $300,000-$400,000. CD 3/29.

Conn., Bristol—BA 4/30—City, Sewer Comn., City Hall, 4,461 ft. sewers, Brook St. area, and 26 manholes. C. M. Pfennig, 175 Main St., city engr.

Conn., New Milford—BA 4/30—Town Sewer Comn., Main St., sewage treatment plant, $300,000. Frederick Ferriss, 5 Garden Hill Rd., Morristown, N. J., consult. engrs.; influent and effluent sewers, $180,000, Victor. L. Woodhull, Allen Bldg., New Milford, engr.; incinerator, $100,000. CD 7/6.

† Mass., East Boston—UNDERGROUND TANKS—BA 4/30—USA, USP and FO, 905 Commonwealth Ave., Boston, Logan Airport Mang area, MNG 19-093-57-32, install underground tanks, etc. $75,000. CD 2/21/56.

BUILDINGS—BA

† Vt., Montpelier—TRAINING CENTER—BA 4/16—U. S. Eng., 150 Causeway St., Boston, Mass., Army Reserve Training Center, ENG-19-016-57-112, $250,-000-$300,000. Plans deposit $10. Joseph L. Paley, 105 Newbury St., Boston, Mass. and Reisner & Urbahn, 660 Madison Ave., New York, N. Y. engrs. CD 3/18.

Conn., Ridgefield—SCHOOL—BA 4/18—Town,, Veterans' Park School Addn., 1 story, cavity brick slab. $345,000, Sherwood, Mills & Smith, 65 Broad St., Stamford, archts. Seeyle, Stevenson, Value & Knecht, 101 Park Ave., New York, N. Y., engrs. CD 2/21/57.

▲ R. I., Providence—CANCER TREATMENT, etc.—BA 5/2—Rhode Island Hospital, 593 Eddy St., Providence, cancer treatment and research bldg., Lockwood St. $2,500,000. Shepley, Bullfinch, Richardson & Abbott, 1 Court St., Boston, Mass., archts. CD 6/29/55.

HEAVY CONSTRUCTION—SLC

Conn., East Hartford—Connecticut Co., 470 James St., New Haven, soon lets contract repaving and relocating freight railroad tracks, Burnside Ave. and Main St. $200,000. CD 4/25/56.

BUILDINGS—SLC

Mass., Shrewsbury—SALESROOM, etc.—Oliver Assoc., c/o Doak Martin, archt., 8 Norwich St., Worcester, soon lets contract, salesroom, warehouse, office, Rte. 9. $100,000. CD 1/16.

HEAVY CONSTRUCTION—LB & CA

† James Farina Corp., 63 Bridge St., Newton, Mass. LB $638,836, est. $669,749. storage facilities for ordnance storage area, Dow Air Force Base, ENG-19-016-57-176, BANGOR, ME. U. S. Eng., 150 Causeway St., Boston, Mass. Black & Veatch, 1500 West Meadow Lake Parkway, Kansas City, Mo., engrs. Bids Mar. 25. CD 2/26.

† Kirkland Constr. Co., 190 Fifth St., Cambridge, Mass., LB $288,950, est. $300,000. Enlisted men's club, Naval Air Station, NBy 5056, Spec. 5056/56, BRUNSWICK, ME. First Naval Dist., 495 Summer St., Boston, Mass. W Chester Browne & Assoc., 184 Boylston St., Boston, Mass., archts.-engrs. Bids Mar. 27. CD 3/7.

† Rev-Lyn Contg. Co., 9 Hudson St., Lynn, Mass. LB $104,760, est. $100,000. repairs End Zones and Runway 17-35, Naval Air Station, NBy 9634, Spec. 9634/56, South Weymouth, WEYMOUTH, MASS. First Naval Dist., 495 Summer St., Boston, Mass. Bids Mar. 27. CD 3/11.

N. B. King, Inc., 26 Moore Court, New London, Conn., LB $46,800. (4 bidders) relocate two 24 in. water transmission mains for 1,650 ft., WATERFORD, CONN. City, New London, Conn. CD 8/13.

BUILDINGS—LB & CA

H. P. Cummings Constr. Co., High St., Woodsville, N. H., LB $919,333, Lyman C. Hunt JUNIOR HIGH SCHOOL, North Ave., BURLINGTON, VT. City, Supt. Schools, High School, Burlington, Vt. Bids Mar. 26. CD 3/7.

▲ United Engineers & Constructors, Inc., 1401 Arch St., Phila., Pa. CA Est. $9,000,000. air liquefaction PLANT, ACTON, MASS. Air Reduction Sales Co., div. Air Reduction Co., Inc., 150 E. 42 St., New York 17, N. Y.

John Bowen Co., Inc., 273 Boston St., Dorchester, Mass. CA $350,000. GYMNASIUM housing basketball and squash courts, etc.; CA $300,000. football stadium, NEWTON, MASS. Boston College, 140 Commonwealth Ave., Boston, Mass. M, A. Dyer Co., 24 School St., Boston, Mass., archts.

▲ George A. Fuller Co., 11 Beacon St., Boston, Mass., CA $2,500,000, sq. ft. 50,000 MACHINE SHOP and ASSEMBLY BAY, West Johnson Ave., CHESHIRE, CONN. Waterbury-Farrel Foundry & Machine Co., 453 Bank St., Waterbury, Conn. Fletcher-Thompson, Inc., 211 State St., Bridgeport, archt. and engr. Bids Feb. 6, awarded Mar. 22. CD 1/28, under Conn., Waterbury.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† N. Y., Fisher's Island—ELECTRIC DUCTS—BA 4/15—U. S. Navy, Underwater Sound Laboratory, Fort Trumbull, New London, Conn., electric ducts to Bldg. No. 208, test facilities, U. S. Navy Underwater Sound Laboratory Annex, NBy 4080.

Pa., Phila—PIER—BA 4/15—City, City Hall Annex, Bid A 6043, installing apron crossovers on municipal Pier No. 80, South Delaware River.

Pa., Phila.—CONCESSION BLDG.—BA 4/15—City, City Hall Annex, Bid 5944-46, general constr., plumbing and drainage, electrical work for concession bldg. Burholme Park, Fairmount Park System. Plans deposit $10. CD 3/1/46.

† Md., Patuxent River—CONDUIT AND DUCT—BA 4/17—Dist. Pub. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., conduit and duct between Bldgs. 103 and 148, Naval Air Station, NBy 8390. CD 8/27.

† New York—BA On Or About 4/18—U. S. Eng., 111 E. 16 St., New York, Zone 3, dredging to depth of 8 ft. at mean low water involving removal of approx. 30,600 cu. yd. place measurement of all material except ledge rock from Long Island Intracoastal Waterway in Moriches Bay, CIVENG-30-075-57-68.

† Del., Wilmington—AIRPORT OPERATIONS, etc.—BA 4/23—Delaware National Guard, New Castle County Airport, Wilmington, airport operations and training bldg. $500,000. Thomas M. Donohue, Marshallton, archt. Louis H. Doane, Penna. R.R. Bldg., Wilmington, engrs. CD 5/10.

† Pennsylvania — BATTALION HEADQUARTERS FACILITIES—BA 4/24—U. S. Eng., 2635 Abbottsford Rd., Phila., battalion headquarters, facilities, AAA site, Edgemont, Delaware Co., ENG-36-109-57-61. $500,-000. Anderson & Casaccio, 504 Swede St., Norristown, archts.-engrs.

† Pa., Middletown—WAREHOUSES—BA 4/24—U. S. Eng., 24 St. and Maryland Ave., Baltimore 18, Md., 1 story, 400x1,200 ft., 1 story, 400x400 ft. rein.con. AMC warehouses, utilities, Olmsted Air Force Base, ENG-18-020-57-32. $500,000-$1,000,000. Plans deposit $35. Gannett, Fleming, Corddry & Carpenter, Inc., 600 N. Second St., Harrisburg, engr.

New York—BA 4/25—The Power Authority of the State of New York, 270 Broadway, New York, furnishing, del. 26 MVA three-winding transformers, Barnhart-Plattsburgh Transmission Proj., Spec. PA-6-27, Contr. TP6. Plans deposit $10. Uhl, Hall & Rich, 230 Congress St., Boston 10, Mass., engrs. CD 8/18/54.

† Pa., Middletown—HEATING PLANT—BA 4/25—U. S. Eng., 24 St. and Maryland Ave., Baltimore 18, Md., 4 story, 62x84 ft., concrete, steel central heating plant, Olmsted Air Force Base, ENG-18-020-57-33. Plans deposit $30. Constantini Assocs., 237 First Ave., New York 3, N. Y., engrs.

New York—BA 4/26—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, reconstr. west approach of Roosevelt Ave. Bridge over Flushing River. Plans deposit $25.

▲† Pa., Middletown — ADMINISTRATION BLDG — BA 4/26—U. S. Eng., 24 St. and Maryland Ave., Baltimore 18, Md., 3 story, 62x604 ft. brick, concrete block admin. bldg., with 3 wings, 63x120 ft., Olmsted Air Force Base, ENG-18-020-57-34. $1,000,000-$3,000,000. Plans deposit $75. Lawrie & Green, 321 N. Front St., Harrisburg, engrs.

† New York—BA On Or About 4/30—U. S. Eng., 111 E. 16 St., New York, Zone 3, constr. Tuscarora River band protection Addison, CIVENG-30-075-57-69. Bids 3/12 rejected. CD 3/14, under LB.

BUILDINGS—BA

Pa., East Greenville—SCHOOL—BA 4/24—Upper Perkiomen Joint School Bld., const. high school addn., gymnasium, athletic field. $830,000. Wolf & Hahn, 459 Hamilton St., Allentown, archts.-engrs. CD 2/11/55.

▲ Pa., Phila.—RECEPTION CENTER—BA 5/13—City, Dpt. Procurement, City Hall Annex, children's reception center, four 1 story, brick, glass bldgs., outside utilities. $1,250,000. Bellante & Clauss, 1810 Rittenhouse Square, Phila., archts-engrs. CD 9/26.

Pa., Phila.—MOTEL—Bids Asked—Beryl Price, archt., 1911 Pine St., motel, 90 units, swimming pool, for Carroll & Cutler, Inc., Marlyn Hotel, 40 and Walnut Sts., Phila., Pa. $344,000. CD 3/9/55.

HEAVY CONSTRUCTION—LB & CA

Rapone Contg. Corp., 399 Duffy Ave., Hicksville, N. Y. CA $131,226. storm water drain, Paff, Clinton and Argyle Aves. and Northern Parkway area, Uniondale, HEMPSTEAD, N. Y. Town Bd., Town Hall, Hempstead, N. Y. Bids Mar. 12.

A. J. Eckert Co., Inc., 1062 Central Ave., Albany 5, N. Y. LB $295,710. imprv. water supply, pump house, filtration plant, Bldg. 55, Marcy State Hospital, MARCY, N. Y. Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Mar. 28.

▲ Garafano Constr. Co., Inc., and Garquist Marine Corp., 2 Gramatan Ave., Mount Vernon, N. Y. CA $1,077,-500. general constr. new ferry slip and terminal bldg. and installation ferry facilities equip. and services near foot of E. 134 St., East River, Bronx Boro, NEW YORK, N. Y. Comr. Marine & Aviation, Pier 1, North River, New York 4, N. Y. Bids Jan. 9, awarded Mar. 14. CD 1/11, under LB.

▲† Washbourne Constr. Corp., 18 E. 41 St., New York 17, N. Y. CA $1,194,800. ammunition storage facilities, Griffiss Air Force Base, ENG-57-312, ROME, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. CD 3/19, under LB.

(Continued on page 118)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction
(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

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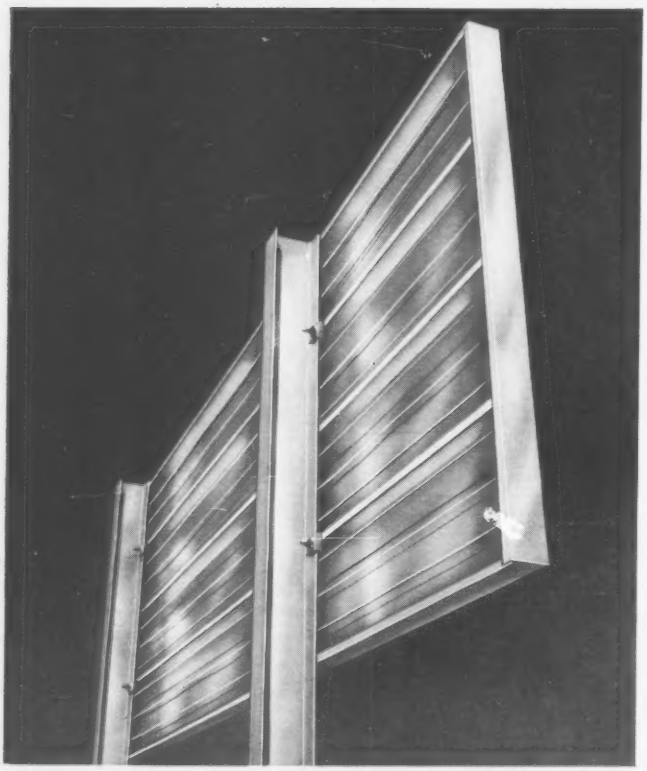
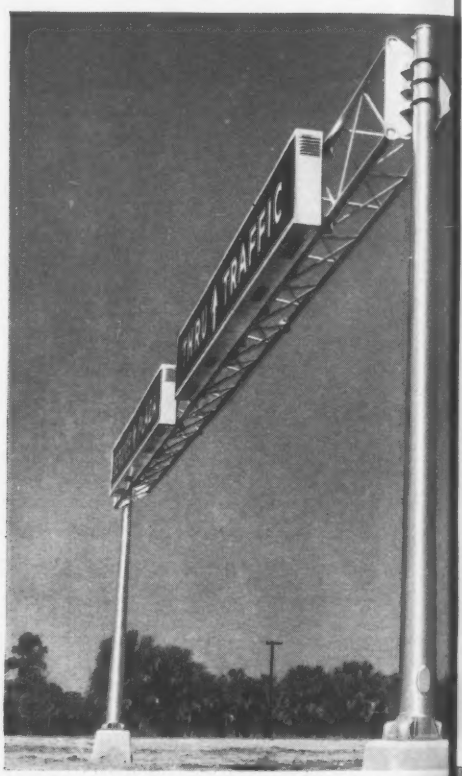
Defies rust, resists sea air, assures long life and lowest maintenance for

SIGNS, SIGN POSTS & STRUCTURES





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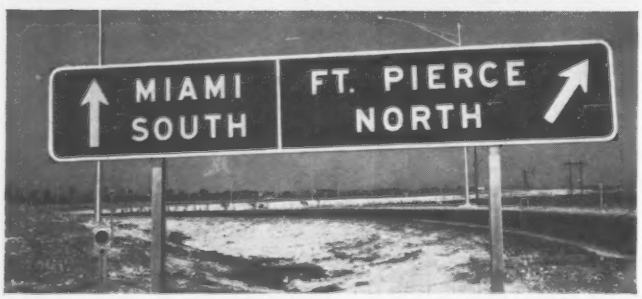

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ON THE SUNSHINE STATE PARKWAY

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Bridge Railing Distributors—Monarch Corp., Miami, Fla.
Bridge Railing and Sign Erectors—Florida Guard Rail Co., Riviera Beach, Fla.
Sign Fabricators—Traffic & Street Sign Co., Newark, N. J.
Aluminum Lighting Standards—Pfaff & Kendall Co., Newark, N. J.

Florida's seaside atmosphere is fine for people—but it's rough on metals. That's why the Florida State Turnpike Authority specified aluminum. Not only is rust impossible, but these aluminum signs, sign posts, overhead sign structures, bridge railings and lighting standards are also highly resistant to corrosion. Maintenance is thus minimized throughout the long life of these aluminum highway products. And the light weight of this strong metal means basic economies in shipping, handling and erection. See captions under product pictures for available literature. For names of distributors or manufacturers, call the nearest Reynolds Sales Office listed under "ALUMINUM" in classified telephone directories. Or **Reynolds Metals Company,** General Sales Office, Louisville 1, Ky.

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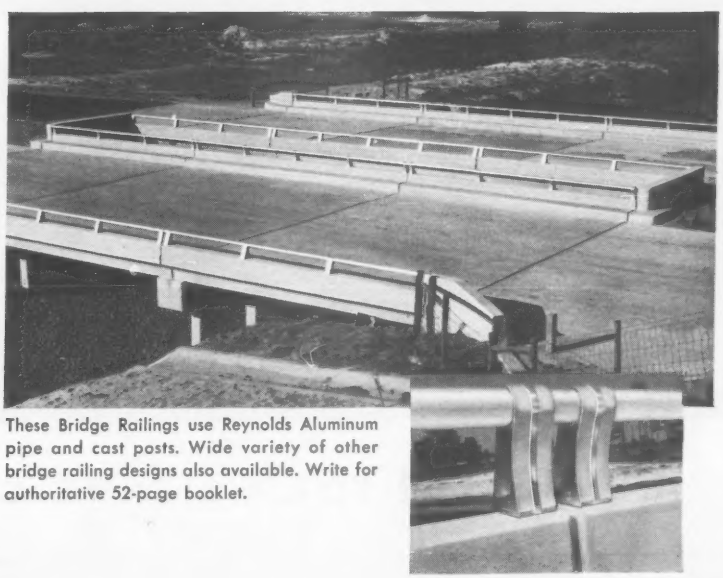

These Bridge Railings use Reynolds Aluminum pipe and cast posts. Wide variety of other bridge railing designs also available. Write for authoritative 52-page booklet.

(Continued from page 115)

Carl Petronio Constr. Co., Long Bridge Rd., Albion, N. Y. LB $188,000. sewage plant imprvs., WEBSTER, N. Y. Village, Town Hall, Webster, N. Y. Bids Mar. 11. CD 3/5.

▲ PENNSYLVANIA — State Hy. Dpt., 5C: N. Office Bldg., Harrisburg,

Buckley & Co., Inc., 1317-21 S. Juniper St., Phila., Pa. CA $4,356,660. (6 bidders) 3-span plate girder bridge over Schuylkill River and railroad tracks, retaining walls, piling Pennsylvania Blvd., Phila., Phila. Co. Bids Feb. 21, awarded Mar. 29. CD 2/27, under LB.

Mar-Real Constr. Co., 1331 Porter St., Phila. 48, Pa. CA $110,952. Bid No. 2745 R, sewers in Red Lion Rd., PHILA., PA. City, Dpt. Procurement, City Hall Annex, Phila., Pa. CD 3/21, under LB.

▲ Ragnar Benson, Inc., 2 Gateway Center, Pittsburgh, Pa. LB $1,470,000. 2 story, masonry airline terminal bldg., Greater Pittsburgh Airport, Moon Twp., PITTSBURGH, PA. Bd. Comrs. Allegheny Co., County Bldg., Pittsburgh, Pa. Bids Mar. 19. CD 3/14.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

bids of Mar. 26 held unopened for further consideration by State Rds. Comn., surf. 0.76 mi. Ardwyck-Ardmore Rd. constr. of 4 span steel beam bridge over Washington Circumferential Hy., Contr. P 722-44-320, Prince George Co. CD 3/21.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

Md.—Empire Constr. Co., 31 S. Calvert St., Baltimore 2, Md. LB $766,690. (5 bidders) 4 span steel girder bridge to carry State Rte. 58 over Hagerstown By-Pass and dual 5 span steel girder bridges on Hagerstown By-Pass over U. S. No. 40, Contrs. 446-4-620 and 446-13-620, Washington Co.;

Md.—Chas. W. Williams & Assoc., and 41st Street Corp., 2210 Maryland Ave., Baltimore, Md. LB $225,511. (6 bidders) 4 span steel beam hy. bridge and 4 span prestressed concrete beam pedestrian bridge on Westland Blvd. and Shelburne Rd. over Baltimore Co. Beltway, Contrs. B 635-56-420 and B 635-57-420, Baltimore Co. Bids Mar. 26. CD 3/21.

D. C. Govt., Dpt. Hys., 499 Pa. Ave. N.W., Wash., D. C., rejected bids Feb. 28, rehabilitation of 11 St. bridge over Anacostia River, WASH., D. C. LB $191,378. CD 3/6, under LB.

Curtin & Johnson, Inc., 1116 "W" St. N.E., Wash. 18, D. C., LB $244,911. paving, repaving, widening roadway of 17 St. N.E., Benning to Bladensburg Rds., WASH., D. C. D. C. Govt., Dpt. Hys., 499 Pa. Ave. N.W., Wash., D. C. Bids Mar. 26. CD 3/19.

▲† American Bridge Div., U. S. Steel Corp., Suburban Station Bldg., Phila., Pa., LB $4,281,889. Summit Bridge over Chesapeake and Delaware Canal, New Castle Co., Del. and Cecil Co., Md., DELAWARE and MARYLAND. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa.

J. E. Greiner Co., 1106 N. Charles St., Baltimore, Md., engr. CD 12/31/52.

DELAWARE—State Hy. Dpt., Hy. Dpt. Admin. Bldg., Dover. Bids opened 3/27.

George & Lynch, Inc., Delaware Trust Bldg., Wilmington, Del., LB $568,157. imprv. portion of highway from Milford to Rehoboth. CD 3/18.

James Julian, Inc., 405 duPont Rd., Elsmere, Del., CA $91,290. sanitary sewers in Limestone Acres District, WILMINGTON, DEL. New Castle Co., Levy Court, 11 and King Sts., Wilmington, Del. Awarded Mar. 26. CD 3/28, under LB.

BUILDINGS—LB & CA

▲ Sano-Rubin Constr. Co., 616 Delaware Ave., Albany, N. Y. LB $1,135,000. (9 bidders) JUNIOR-SENIOR HIGH SCHOOL, COLONIE, N. Y. Bd. Educ., Central School Dist. No. 5, Colonie, N. Y. Bids Mar. 19. CD 3/5.

▲ John Kennedy & Co., Inc., 205 E. 42 St., New York, N. Y. LB $1,319,900. (9 bidders) Herrick High SCHOOL, NEW HYDE PARK, N. Y. Bd. Educ., Union Free School Dist. No. 9, Herricks School, New Hyde Park, N. Y. Bids Mar. 27. CD 3/19.

▲ James King & Son, Inc., 350 Fifth Ave., New York 1, N. Y. CA Est. $3,000,000. 6 story extension to HOSPITAL, 2 story addn. to existing building, alterations to existing building, SCHENECTADY, N. Y. Ellis Hospital, Nott St., Schenectady, N. Y. CD 3/5, under LB.

Pathway Homes, c/o William Miller, Midstream Rd., Point Pleasant, N. J. Separate Contracts. $750,000. RESIDENTIAL DEVELOPMENT, 75 units, Arrowhead Park, POINT PLEASANT, N. J.

Broadway Constr. Co., 3207 Brunswick Ave., Drexel Hill, Pa. Separate Contracts. $720,000. RESIDENTIAL DEVELOPMENT, Valley View Rd., etc., CHESTER, PA. David Slott, 1416 Bywood Ave., Bywood, Pa., archt.

Alvin J. Hezler, Oak St., Manor Hill, Irwin, Pa. CA Est. $100,000. 1 story, 99x130 ft., block packaging PLANT, North Huntington Twp., IRWIN, PA. Fold-Ray Corp., Rte. 30, RD 5, Irwin, Pa.

S. A. Berger, 4149 Almon St., Phila., Pa. Separate Contracts. $93,000. 1 story, 40x303 ft., 20x60 ft. masonry T-shaped TRUCK TERMINAL, PHILA., PA.

Castor Highland Development Corp., 1919 Chew Ave., Phila., Pa. Separate Contracts. $344,000. RESIDENTIAL DEVELOPMENT, Thouron St., etc., PHILA., PA. I. W. Levin, 1531 Belmont Ave., Phila., Pa., archt.

Joseph Cutler & Sons Co., 1615 Chelten Ave., Phila., Pa. Separate Contracts. $750,000. RESIDENTIAL DEVELOPMENT, Convent Ave., etc., PHILA., PA.

Benson Homes, 1901 Devereaux St., Phila., Pa. Separate Contracts. $540,000. RESIDENTIAL DEVELOPMENT, Benson St., etc., PHILA., PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.

B. Zambrano Co., 141 S. Highland Ave., Pittsburgh, Pa. CA $365,539. Fairview Elementary SCHOOL, Indiana Twp., SHARPSBURG, PA. School Dist. of Indiana Twp., Dorseyville, Pa. Bids Jan. 3. CD 1/7.

† Redding & Co., 26 E. 25 St., Baltimore 18, Md. LB $247,314. (5 bidders) Signal Corps Engineering LABORATORY FACILITIES, GENERATOR BLDG., radar tower and conversion of coal fired to gas fired, HEATING PLANT, ENG-18-020-57-27, FORT GEORGE G. MEADE, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore 18, Md. Eggley-Furlow Engrs., 1500 Walnut St., Phila., Pa., engrs. 5/16/51.

E. A. Baker Co., 6480 Sligo Mill Rd., Takoma Park, Md. LB Est. $500,000. DORMITORY, LEONARDTOWN, MD. St. Mary's Academy, Leonardtown, Md. Bids Mar. 26. CD 3/21.

▲ A. Joseph Howard, 1829 K St. N.W., Wash., D. C., CA $1,000,000. 8 story, 128-unit masonry APARTMENT, 924-25 St. N.W., WASH., D. C. Alamac Co., Inc., 1829 K St. N.W., Wash., D. C. Edwin Welhe 1810 18 St. N.W., Wash., D. C., archt.

▲ Charles H. Tompkins, 907 16 St. N.W., Wash., D. C., LB $1,075,000. 5 story OFFICE, 608 13 St. N.W., WASH., D. C. First Federal Savings & Loan Corp., 608 13 St. N.W., Wash., D. C. Bids Mar. 27. CD 3/19.

Atlantic Engineering & Constr. Co., Equitable Security Trust Bldg., 9 and Market Sts., Wilmington, Del. Separate Contracts. $390,000. 28-unit RESIDENTIAL DEVELOPMENT, Oak Lane Manor, WILMINGTON, DEL.

SOUTH

HEAVY CONSTRUCTION—BA

† Fla., Milton—INSTALLING LINK TRAINERS—BA 4/23—Officer in Charge of Constr., Naval Air Basic Training Command, Building 45, Naval Air Station, Pensacola, installing link trainers in Bldg. 1407, Naval Auxiliary Air Station, Whiting, NBy-8728, Spec. 8728/56.

† Fla., Jacksonville—BA 4/24—OFFICERS MESS and SWIMMING POOL—Pub. Wks. Office, 6th Naval Dist., Bldg. 13, Charleston, S. C., 2 story commissioned officer's mess (Open) and 15,700 sq. ft. swimming pool air-conditioned and lifeguard stands, Naval Air Station, Cecil Field, NBy-8672, Spec. 8672/56. CD 8/27.

† KENTUCKY—BA 4/26—Bureau P. Rds., Dpt. Commerce, Gatlinburg, Tenn.,

crushed limestone base course 2.427 mi. Sublimity Rd. from Bald Rock to Rockcastle Springs, Cumberland National Forest, Kentucky Forest Hy. Proj. 57-E.

S. C., Sumter—BA About 5/6—U. S. Eng., 31 Customhouse Charleston, flight simulator building, Shaw Air Base, Shaw Field, ENG-38-081-57-29. CD 8/27.

(Continued on page 121)

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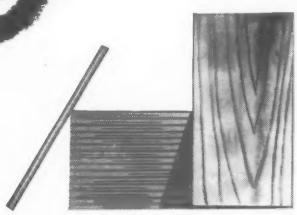

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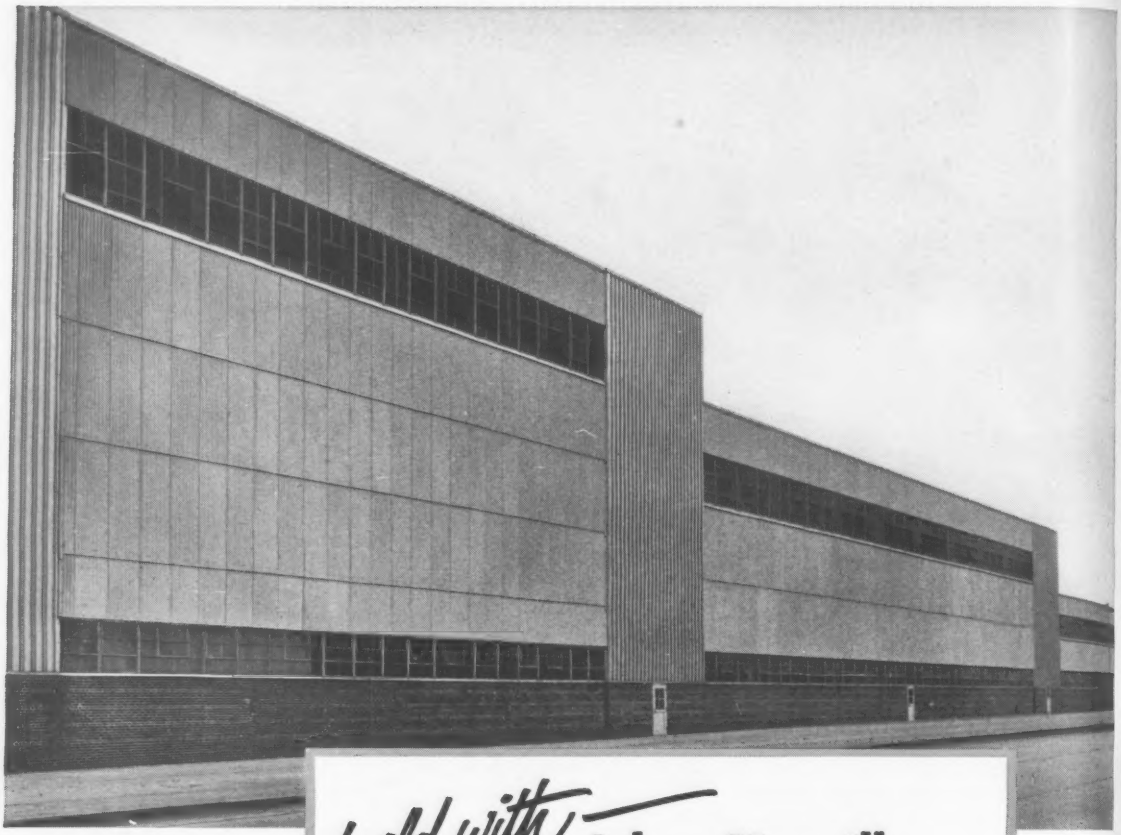

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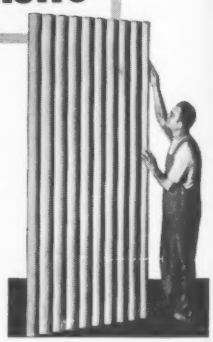

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(Continued from page 118)

† **Tennessee, Arkansas and Mississippi**—BA 5/7—U. S. Eng., P.O. Box 97, Memphis 1, Tenn., placement of approx. 20,000 squares of 5-in. uncompacted asph. pavement on previously graded banks of Mississippi River between Memphis, Tenn., and Henrico, Ark. in states of Tenn., Ark. and Miss. Serial No. CIVENG 40-041-57-167.

BUILDINGS—BA

Ky., Owensboro — HOSPITAL — BA 4/24 — Owensboro Daviess County Hospital, Owensboro, 3 story, reln.-con., brick, concrete block hospital addn. $600,000. Otis & Grimes, 312 Tyler Bldg., Louisville, archts. E. R. Ronald & Assoc., 554 S. Third St., Louisville, engrs. CD 12/14.

† **Miss., Meridian** — TRAINING CENTER — BA On Or About 4/28—U. S. Eng., 2301 Grant St., Mobile, Ala., Army Reserve Training Center, ENG-01-076-57-62.

Ky., Pineville—HOSPITAL—BA 4/30—Pineville Community Hospital, Pineville, 3 story, brick hospital addn. $600,000. Plans deposit $40, refundable. Howard & Thomas J. McClorey, 3002 Woodburn Ave., Cincinnati, O., archts. CD 1/14.

▲ **Va., Portsmouth**—HOSPITAL—BA 5/14—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, 800-1,500-bed HOSPITAL, Naval Hospital, NOy 89463, Spec. 47332. $13,000,000. Plans deposit $350. Extended date. CD 2/19.

W. Va., Charleston—ENGINEERING, etc.—BA 5/15—Union Carbide & Carbon Co., 30 E. 42 St., New York, 17, N. Y., engineering bldg. and laboratory.

HEAVY CONSTRUCTION—SLC

Fla., Miami—HANGAR—L. B. Smith Aircraft Corp., Miami International Airport, soon lets contract, 1 story mezzanine, 358x140 ft. struc. steel air conditioned hangar, Part 2, Miami International Airport. Charles Payne & Assocs., 2000 NE 146 St., North Miami, engrs.

BUILDINGS—SLC

▲ **Fla., Bal Harbor Village**—HOTEL—Owner, c/o Melvin Grossman, archt., 311 Lincoln Rd., Miami Beach, soon lets contract, Beau Rivage Hotel, Collins Ave. and 99 Sts. $3,500,000. Bliss Eng. Co., 1370 Washington Ave., Miami Beach, struc. engr. Henry Nelson, 1101 Lincoln Rd., Miami Beach, mech. engr. CD 12/26, under LB.

▲ **Fla., West Palm Beach**—MANUFACTURING, etc.—Pratt & Whitney Aircraft Div., United Aircraft Corp., East Hartford 8, Conn., manufacturing and office bldg. and boiler house, 2 story 570 x 1000 CB-S and 2 story 89x92 track work, loading platforms, etc., Palm Beach Co. Geo. H. Miehls & Albert Kahn Assoc., Architects & Engineers, Inc., 345 New Center Bldg, Detroit 2, Mich., engr CD 9/21.

HEAVY CONSTRUCTION—LB & CA

▲ **VIRGINIA**—Commonwealth of Va., Dpt. Hys., Central Hy. Office Bldg., 1221 E. Broad St., Richmond. Bids opened 3/27.

Va.—Tidewater Constr. Corp., P.O. Box 57, Norfolk, Va., LB $2,190,229 (2 bidders) Contract 0-4, highway and structures, Norfolk Approach Highway;

Va.—George M. Brewster & Son, Inc., 275 Fort Lee Rd., Bogota, N. J., LB $1,784,946 (2 bidders) Contract N-1, Newport News connector highway and structures;

Va.—Penensular Eng. Co. Inc., P.O. Box 367, Hampton, Va., LB $286,900 (3 bidders) Contract B-5, maintenance bldg., storage and fuel service bldg. incl. mechanical, electrical work, grading, area, etc. CD 3/7.

† **Strickland Brothers**, 1817 County St., Portsmouth, Va., LB $118,735 (7 bidders) threshold and boundary lighting, Seaplane Runway, Naval Air Station NBy 7752, Spec. 7752/57, NORFOLK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Mar. 26. CD 3/6.

† **W. W. Cobb**, 311 Sharp Rd., Norfolk, Va., LB $68,318 (9 bidders) repairing storm damage to sea walls, Marine Corps Supply Forwarding Annex, NBy 7693, Spec 7693/56, PORTSMOUTH, VA. Dist. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Mar. 26. CD 3/6.

WEST VIRGINIA—State Rd. Comn., 1800 Washington St. E., Charleston,

Benny Snyder, White Sulphur Springs, W. Va., CA $517,884. traffic bound base and b. conc. bottom and wearing courses 2.352 mi. Proj F-117 (6) Randolph Co. Bids Mar. 19, awarded Mar. 26. CD 3/25, under LB.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh. Bids opened 3/26,

N. C.—Boyd & Goforth, Inc., Box 10436, Charlotte, N. C. LB $517,646, est. $400,000-$500,000. bridge and approaches 0.801 mi., over Roanoke River on N. C. 48 between Roanoke Rapids and Gaston, 1379 S 578 (1), US 587 (2), Halifax and Northampton Counties;

N. C.—E. P. Brinkley, 936 Cowper Dr., Raleigh, N. C. LB $83,001, est. $75,000-$100,000. structures 2.32 mi. U.S. 117 from U.S. 117-A south of Goldsboro, north to Goldsboro by-pass, 2856, Wayne Co.; LB $634,289, est. $400,000-$500,000. structures 8.495 mi. relocation of U.S. 64 and 70 between Conover and Catawba River, 6251, I 700 (11), Catawba Co.;

N. C.—Columbus Contractors, Whiteville, N. C. LB $561,362, est. $400,000-$500,000. structures 14.08 mi. U.S. 301 from Eastover, northeast of Fayetteville, northeast to Harnett Co. line, 3437 (703 (6), Cumberland Co. CD 3/18.

NORTH CAROLINA—State Hy. & P. Wks. Comn., Raleigh. Bids opened 3/26,

N. C.—E. B. Towles Constr. Co., Inc., Box 1617, Wilmington, N. C. LB $155,382, est. $125,000-$150,000. b. conc. binder surf. 18.49 mi. N.C. 105 from Linville in Avery Co. to point near Fescoe in Watauga Co.; U.S. 321 from Bailey Camp, southeast 2.9 mi.; U.S. 521 from point in Beone, east 6.55 mi., B.S. 11-672-161, B.S. 11-6-75-166, B.S. 11-6-75-169, B.S. 11-6-73-167, Avery, Watauga and Caldwell Counties;

N. C.—Barrus Constr. Co., Box 395, Kinston, N. C. LB $98,964, est. $75,000-$100,000. sheet asph. base surf. b. conc. surf. 32.15 mi. six sections of road in Wayne Co., and 1 section of road in Johnston, B.S. 4-6-33-143, B.S. 4-7-33-44, B.S. 4-7-31-73, Wayne and Johnston Counties; LB $145,572, est. $125,000-$150,000. CABC S.A. surf. 7.09 mi. from point on county road approx. 0.6 mi. north of Bayboro, north to a point 2.5 mi., south of Royal, 2-502, S 447 (2), Pamlico and Beaufort Counties;

N. C.—Blythe Brothers Co., Box 989, Charlotte, N. C. LB $92,132, est. $100,000-$125,000. b. conc. binder surf. Class H and I 6.11 mi., right lane of U.S. 29 and 601 from Cabarrus Co. line, northeast to U.S. 29-A northeast of China Grove, 6739 F 492 (6), Rowan Co.;

N. C.—Asheville Paving Co., Box 7068, Asheville, N. C. LB $85,918, est. $100,000-$125,000 b. conc. binder surf. 2.21 mi. U.S. 70 from point in Black Mountain, east to point in Ridgecrest, 9037, F 62 (7), Buncombe Co.; LB $265,516, est. $225,000-$250,000. CABC, bit. surf. tr. 2.785 mi. from point U.S. 64 in Brevard approx. 0.1 mi. from east city limits, northeast across country to N. C. 280, thence northeast, following N. C. 280 to end of proj., 9906, SF 418 (7), Transylvania Co.;

N. C.—H. R. Stewart & Co., Box 88, Charlotte, N. C. LB $529,654, est. $400,000-$500,000. CABC 3.41 mi. county road from point near Beach Gap, south to. Pinhook Gap, 0-702, FH 32-H, Hayweed, Transylvania and Jackson Counties;

N. C.—S. T. Wooten Constr. Co., Inc., Stantonsburg, N. C. LB $217,500, est. $225,250. STBC, b. conc. binder surf. 2.32 mi. addnl. lane on U.S. 117 from U.S. 117-A south of Goldsboro, north to Goldsboro by-pass, 2856, Wayne Co.;

N. C.—C. C. Mangum, Inc., 3010 Hillsboro St., Raleigh, N. C. LB $522,609, est. $400,000-$500,000. grading 14.08 mi. relocation of U.S. 301 from Eastover, northeast of Fayetteville, northeast to Harnett Co. line, 3437, I-703-(6), Cumberland Co.;

N. C.—Nello L. Teer Co., Trust Bldg., Durham, N. C. LB $744,778, est. $400,000-$500,000. subgrade reln.-con. 6.13 mi. relocation of U.S. 15 from point on U.S. 70 (Durham by-pass) northeast to point 0.6 mi. south of Neuse River, 4162, IN-663 (11), Durham Co.;

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N. C.—**Ballenger Paving Co.**, Box 927, Greenville, S. C. LB **$2,694,940.** subgrade reinf., SABC, bit. surf. tr. 16.29 mi. on relocation of U.S. 421 from point east of Kernersville to Goldsboro, 5347, I-712 (4), U 712-(5), Forsyth and Guilford Counties;

N. C.—**Midstate Contractors, Inc.**, Box 2401, Hickory, N. C. LB **$107,798**, est. $100,000-$125,000. b. conc. binder surf. 5.75 mi. U.S. 220 from point 2.2 mi. north of Guilford Co. line, north to point 1 mi. south of Madison, 5903 F 286 (6), Rockingham Co.;

N. C.—**Wilkes Eng. Co.**, North Wilkesboro, N. C. LB **$698,788**, est. $400,000-$500,000. grading 8.495 mi. relocation U. S. 64 and 70 between Conover and Catawba River, 6251 I 700 (11), Catawba Co. CD 3/18.

Chicago Bridge & Iron Co., Healy Bldg., Atlanta, Ga. CA **$172,500.** Sect. 4 elevated steel water tank, ALBEMARLE, N. C. City, Albemarle, N. C. CD 3/14, under LB.

▲† **T. A. Loving & Co.**, Bank of Wayne Bldg., Goldsboro, N. C. LB **$1,650,925.** hospital and hospital addn., Seymour Johnson Air Force Base, ENG-57-23, GOLDSBORO, N. C. U. S. Eng., 308 Customhouse, Wilmington, N. C. Bids Mar. 19. CD 1/30.

A. P. White & Assocs., 220 Latta Arcade, Charlotte, N. C. LB **$368,937.** sewerage works imprvs., NORTH WILKESBORO, N. C. Town, North Wilkesboro, N. C. Bids Mar. 19. CD 3/6.

Ray D. Lowder, Inc., Albemarle, N. C. LB **$230,241.** sewer outlet constr., WILSON, N. C. City, Wilson, N. C. Bids Mar. 20. CD 3/6.

FLORIDA—State Road Dpt., Tallahassee,

Cone Bros. Constr. Co., Box 1301, Tampa, Fla. CA **$879,785.** (3 bidders.) limerock base, Type 1A surf. tr., constr. beach erosion protection consisting of groins, rock fill and jetties, Longboat Inlet bridge approaches, SR 780, S. P. Job No. 1308-176, Manatee Co. CD 12/19.

† **Cleveland Electric Co., Inc.**, P. O. Box 5721, Jacksonville, Fla., CA **$119,977**, electrical switching station and distribution, Air Force Missile Test Center, Patrick Air Force Base, ENG-08-123 (NEG-57-47), COCOA, FLA., U. S. Eng., Jacksonville Dist., 575 Riverside Ave., Jacksonville, Fla. CD 5/24/49.

† **B. B. McCormick Constr. Co.**, Jacksonville Beach, Fla. LB **$224,454.** repairs, alterations to station facilities at Naval Auxiliary Air Station, (NBy 10199), MAYPORT, FLA. Pub. Wks. Officer, Dpt. Navy, Naval Base, S. C. CD 2/26.

▲ **Fred Howland, Inc.**, 1451 NW 20 St., Miami, Fla. CA **$1,785,367.** hangar and apron (American Airmotive Corp.), Miami International Airport, MIAMI, FLA. Bd. Comrs. Dade Co., Courthouse, Miami, Fla. Watson & Deutschman, 811 Chamber of Commerce Bldg., Miami, Fla., engrs.-archts. CD 2/20, under LB.

† **G. C. Powell**, 5100 13th Ave. N., Birmingham, Ala., CA **$484,275**, off-site utilities in support of Housing Project, Tyndall Air Force Base, (IFB)-08-601-57-35, PANAMA CITY, FLA. Office of the Contracting Officer, Bldg. 209, Panama City, Fla., Bids Jan. 22, CD 1/4/57.

Donahoo Contg. Co., 520-1st Ave., Birmingham, Ala., LB **$219,451**, (10 bidders) Section 2 of Patton's Creek Sewage Project, 14,000 feet sewer mains, temp. septic tank, near Homewood, BIRMINGHAM, ALA. Jefferson Co., Courthouse, Birmingham, Ala. CD 3/6.

▲† **deGive, Dunham & O'Neill, Inc.**, 1478 Mecasin St. N.W., Atlanta, Ga. LB **$1,067,069**, est. $1,138,766, 38,000 sq. ft. hospital, utility system, Columbus Air Force Base, ENG-57-55, COLUMBUS, MISS. U. S. Eng., 2301 Grant St., Mobile, Ala. Bids Mar. 26. CD 3/15.

▲ **MISSISSIPPI**—State Hy. Dpt., T. C. Robbins, dir., Jackson, bids opened 3/26,

Miss.—**L & M Constr. Co.**, 843 Vance Ave., Memphis, Tenn. CA **$1,096,050**, est. $1,370,000. grade, culverts, grade separation structures 7.045 mi. on U. S. Hy. No. 51 between Love and Hernando and 0.509 mi. on un-numbered county hy. connecting to U. S. Hy. 51, Proj. I-091-4 (5), and S 0904 (3)A, DeSoto Co.;

Miss.—**J. B. Michael & Co., Inc.**, 1021 Heywood St., Memphis, Tenn. CA **$1,534,945**, est. $1,750,000. grade, culverts, topping, 8 grade separation structures, 4 mi. U. S. Hy. No. 11 in Laurel, Proj. I-IN 092 (2), IN 092-2 (3), Contr. II, I-16 092-2 (4), Jones Co.;

Miss.—**Midstate Paving Co.**, Lamar Bldg., Meridian, Miss. CA **$187,076**, est. $214,000. incidental grade, drain 16.707 mi. Miss. Hy. No. 13 between Columbia and Prentiss, Proj. F 037-1 (6), and F 037-1 (7), Marion and Jefferson Davis Counties. CA **$417,821**, est. $501,000. grade, drain, culverts, railroad overpass 4.216 mi. Miss. Hy. No. 33 between Roxie and Hamberg, Proj. F 049-1 (13), FG-049-1 (14), Franklin Co.;

Miss.—**Memphis Stone & Gravel Co.**, 551 S. Hollywood St., Memphis, Tenn. CA **$105,164**, est. $135,000. incidental grade, base, double bit. surf. tr. 8.533 mi. Miss. Hy. No. 32 between Okolona and Van Vleet, Proj. F 051-2 (8), Chickasaw Co.;

Miss.—**M & W Constr. Co.**, Tupelo, Miss. CA **$225,326**, est. $228,000. temporary grav. surf. 8.387 mi. Miss. Hy. No. 442, between Shaw and Doddsville, Proj. S 0612 (1) A, Sunflower Co. Grand total $3,566,383. CD 3/15.

▲† **F & C Engineering Co.**, 3018 Leeland St., Houston, Tex. LB **$6,391,718.** primary runway ends, taxiways and aprons, Columbus Air Force Base, ENG-01-076-57-70, COLUMBUS, MISS. U. S. Eng., 2301 Grant St., Mobile, Ala. Bids Mar. 22. CD 3/7.

▲† **R. B. Tyler**, 1446 Levering St., Louisville, Ky., **F & C Engineering Co.**, 3018 Leeland St., Houston, Tex., and **Hyde Constr. Co.**, 1804 N. Mill St., Jackson, Miss. CA **$6,391,717**, est. $6,848,456. lengthen primary runway, 2,000 ft. and subsidiary work, Columbus Air Force Base, COLUMBUS, MISS. U. S. Eng., 2301 Grant St., Mobile, Ala. CD 4/2, under LB.

† **Valley Constr. Co.**, Box 787, Columbus, Ga. CA **$757,157**, est. $690,982. ammunition storage area, Columbus Air Force Base, ENG-57-71, COLUMBUS, MISS. U. S. Eng., 2301 Grant St., Mobile, Ala. Bids Mar. 21, awarded Mar. 28. CD 4/1, under LB.

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

W. H. Patterson & Co., Arbutus Standard Heights, Baton Rouge, La. LB **$1,150,099.** bit. surf. tr. 5.603 mi. intersection US-61 Amite River Bridge Hy., Rte. LA-US 190, S.P. 13-05-09, Fed. Aid Proj. F 380 (3), East Baton Rouge Parish. Bids Mar. 27. CD 3/20.

John A. Petty, Rte. 3, Longview, Tex. CA **$908,731.** Proj. No. 1, addns. to sewerage collection sys. and water distr., WINNFIELD, LA. Mayor and Bd., Winnfield, La. CD 3/19, under LB;

Pittsburgh-Des Moines Steel Co., Praetorian Bldg., Dallas, Tex. CA **$83,480.** Proj. 2, elevated water tank (Winnfield, La.).

W. D. Rommel Co., 1449 Hugh St., Louisville, Ky. LB **$814,222.** (5 bidders) 2 clarifier basins, rein.-con., steel, LOUISVILLE, KY. Louisville Water Co., 431 S Third St., Louisville 1, Ky. Bids Mar. 26. CD 3/5;

Link Belt Co., 136 N. Fourth St., Louisville 1, Ky. LB **$149,206.** (5 bidders) Contr. B, equipment for 2 clarifier basins (Louisville, Ky.).

BUILDINGS—LB & CA

Mottley Constr. Co., Farmville, Va., LB **$428,600** (4 bidders) HIGH SCHOOL, Chincoteague, ACCOMACK, VA. School Bd. of Accomack Co., Accomack, Va. Oliver & Smith, 333 W. Freemason St., Norfolk, Va., archts. Awarded Mar. 28. CD 3/3/55.

† **Grunley, Walsh & Blanche Inc.**, 327 Carroll St. N.W., Wash., D. C. LB **$499,300.** (9 bidders.) LIBRARY, RESEARCH and PROFESSIONAL BLDG., ENG-49-080-57-55 (54), VINT HILL FARMS STATION, VA. U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C. Bids Mar. 27. CD 3/25.

C. L. Lewis & Co., Inc., Stephenson Ave., Lynchburg, Va. CA **$700,000.** POST OFFICE, BLUEFIELD, W. VA. Baker & Baker, GMAC Bldg., Columbia, S. C.

Fred C. Gardner, Kinston, N. C. LB **$376,495.** SCHOOL addns., WILSON, N. C. Wilson Co. Bd. Educ., Wilson, N. C. Frank W. Benton, Wilson, N. C., archt. CD 10/28/55.

Claussen & Webster, Gwinnett St. Exten., Augusta, Ga. CA **$475,000.** BAKERY PLANT, CHARLESTON, S. C. Claussen Baking Co., 1589 Broad St., Augusta, Ga. J. Edwin Hopkins, 24 W. 40 St., New York, N. Y., archt. CD 8/31/54.

▲ **Batson-Cook Co.**, Box 151, West Point, Ga., LB **$1,724,700.** food products mfg. PLANT, ATLANTA, GA. Gordon Foods, 1075 Sylvania Rd. S. W., Atlanta, Ga. Bids Mar. 26. CD 3/21.

▲ **Thompson & Street Co.**, 505 Builders Bldg., Charlotte, N. C. LB **$6,209,000.** MANUFACTURING PLANT annd OFFICE, S. Orange Blossom Trail, 12 Square mile tract, ORLANDO, FLA. Glenn L. Martin Co., 431 E Central Ave., Orlando, Fla. Bids Mar. 26. CD 3/6.

▲ **Coite Somers Co.**, Vidalia, Ga. CA **$1,353,575.** Walker Parke ELEMENTARY SCHOOL, Loganville HIGH and ELEMENTARY SCHOOL, Youth-Walnut Grove ELEMENTARY SCHOOL, remodeling Social Circle ELEMENTARY SCHOOL, Good HOPE ELEMENTARY SCHOOL, Social Circle TRAINING SCHOOL, Walton Carver HIGH SCHOOL and Good Hope ELEMENTARY SCHOOL, MONROE, GA. State School Bldg. Auth., 244 Washington St. S. W., Atlanta, Ga. CD 2/26, under LB.

▲ **Natco Corp.**, 327 5th Ave., Pittsburgh, Pa., Owner Builds. **$2,100,000;** CLAY CONDUIT MFG. PLANT, BESSEMER, ALA. CD 4/1.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

† **Michigan**—BA 4/16—U. S. Eng., 600 E. Jefferson St., Detroit, sewage disposal and related work, Detroit vicinity.

▲ **O., Toledo**—BA About 5/1—City, Russell Rink, mgr., secondary sewage treatment plant, Bay View Park. $3,500,000. Consoer, Townsend & Associates, 360 E. Grand St., Chicago, Ill., consult. engrs. CD 4/16/53.

† **Illinois**—BA 5/3—U. S. Eng., 420 Locust St., St. Louis 2, Mo., levees, East St. Louis and vicinity (East Side Levee & Sanitary Dist.) Madison and St. Clair Counties, Proj. Item III-D, CIVENG-23-065-57-75. CD 11/9/55.

† **Ill., Hines**—DISTRIBUTION SYSTEM—BA 5/28—Veterans Admin., Munitions Bldg., Wash., D. C., electrical distr. sys. Bldg. No. 1, $200,000-$300,000. CD 3/1.

BUILDINGS—BA

▲ **Mich., Ann Arbor**—SCHOOL OF MUSIC—BA 4/25—Regents of the University of Michigan, W. K. Pierpont, vice pres., Plant Service Bldg., North University and Forest Ave., School of Music, University of Michigan, Proj. No. 50. $4,000,000. Plans deposit $50, refundable, Eero Saarinen & Assoc., West Long Lake Rd., Bloomfield Hills, archts. CD 12/4.

▲ **Wis., Racine**—HOSPITAL—BA 5/1—Racine Co., Court House, remodeling of Mental Hospital. $1,000,000. Extended date. Durrant & Berguist, 666 Loras Blvd. Dubuque, Iowa, engrs. CD 3/14.

▲ **Ill., Pana**—SCHOOL—BA 5/6—Pana School Dist., Pana, high school. $1,000,000. D. Clarence Wilson, Mount Vernon, archt. CD 3/6.

▲ **Ind., Bloomington**—DORMITORY, etc.—BA 5/7—Bd. Trustees, Indiana University, J. A. Franklin, pres.-treas., Bloomington, 7 bldgs., incl. 5 story women's dormitory, 3 two story men's dormitory, dining hall, reference library, $3,000,000-$4,000,000. Plans deposit $60, Edw. D. James, 122 E. Michigan St., Indianapolis, archt. Ammerman, Davis & Stutz Inc., 912 K P Bldg., Indianapolis, mech. engr. CD 3/29.

BUILDINGS—SLC

▲ **Ill., Chicago**—BANK—Federal Reserve Bank of Chicago, LaSalle & Jackson Blvd., soon lets contract 250,000 sq. ft., bank addn., LaSalle, Jackson, Wells and Quincy Sts. $10,000,000. Naess & Murphy, 85 Jackson Blvd., archts. CD 12/19/52.

HEAVY CONSTRUCTION—LB & CA

Burch Constr. Co., 2445 Neff St., Dayton, O. LB $346,659. (10 bidders) Strouds Run Dam, ATHENS, O. Dpt. P. Wks., State Depts. Bldg., Columbus, O. Bids Mar. 22. CD 1/13/56.

A. W. Burns & Sons Constr. Co., 424 Woodland Ave., Columbus, O. LB **$136,658.** taxiway and paving two about hangars, Port Columbus Airport, COLUMBUS, City, City Hall, Columbus, O. CD 9/19.

Shreve Constr. Co., Bleck Rd., Michigan City, Ind., LB **$380,934.** local sewer, East Lincolnway VALPARAISO, IND. City, City Hall, Valparaiso, Ind. Paul Tanck Assocs., 16 N. Frankin Ave., Valparaiso, Ind., engrs.

▲ **ILLINOIS**—Illinois State Toll Hy. Comn., 20 N. Wacker Dr., Chicago,

American Bridge Div., U. S. Steel Corp., 208 S. LaSalle St., Chicago, Ill. LB **$1,251,720.** Contr. ST-2, fabricating, erecting structural steel for superstructure beginning N. of town of Robbins and crossing Calumet Sag Channel to point 350 ft. of Village of Alsip, 2,712,000 lb. structural steel and girder spans. Bids Mar. 28. CD 3/14.

▲ **ILLINOIS**—Illinois state Toll Hy. Comn., 20 N. Wacker Dr., Chicago. Bids opened 3/28,

Gust K. Newberg Constr. Co., and **Hoyle-Newberg Corp. Co.**, 2040 N. Ashland Ave., Chicago, Ill. LB $5,057,002. Cont. T-11-B, grading, drainage, paving, appurtenances, constr. precast concrete and structural steel bridges beginning W. of Huehl Rd. exten. easterly to point 239 ft. N. of Dundee Rd. 4.519 mi. CD 3/8.

Engineering Constr. Co., 402 N. Cheyenne St., Tulsa Zone 3, Okla. LB **$296,234.** gas distr. sys., GRANVILLE, ILL. City, Grayville, Ill. Bids 3/7. CD 2/2

Svendsen Bros., Sturtevant, Wis. LB **$211,790.** (7 bidders) Unit No. 2, Yout St. storm sewer, RACINE, WIS. City, City Hall, Racine, Wis. Bids Mar. 15.

John Longo & Co., 14646 Cedargrove St., Detroit, Mich. CA **$166,518.** S. A. D. 635, concrete street paving, DEARBORN, MICH. City, Myron A. Stevens, city clk. Schaefer and Michigan Ave., Dearborn, Mich. Bids Mar. 4. CD 2/15/52.

Glime Constr. Co., St. Clair Shores, Mich. CA $80,810. Lake Shore High School athletic field, ST. CLAIR SHORES, MICH. Bd. Educ., School Dist. No. 1, 23025 Masonic Blvd., St. Clair Shores, Mich. Eberle M. Smith Assoc., Inc., 153 E. Elizabeth St., Detroit, Mich., archts. CD 10/9, under Public Buildings.

BUILDINGS—LB & CA

R. P. Carbone Constr. Co., 1504 Scovil Ave., Cleveland 15, O. CA **$596,499.** HIGH SCHOOL, BROOKLYN, O. Bd. Educ., 9700 Biddulph Rd., Cleveland 9, O. Bids Mar. 14, awarded Mar. 19. CD 3/19, under LB.

John Hemmer Constr. Co., 1608 Russell St., Covington, Ky., LB **$609,400**, est. $575,000. (2 bidders) 1 story, brick. Fairview Elementary SCHOOL Addn., Stratford Ave., CINCINNATI, O. Bd. Educ., 608 McMillan St., Cincinnati, O. Bids Mar. 26. CD 2/1

Knowlton Constr. Co., 1133 W Columbus St., Bellefontaine, O. LB **$726,000.** general contract RECEIVING HOSPITAL, DAYTON, O. State Dpt. P. Wks., Columbus, O. Bids 3/26. CD 3/5.

▲ **Knowlton, Inc.**, 1133 W. Columbus St., Bellefontaine, O. LB **$1,257,000.** (4 bidders) general contract HIGH SCHOOL, FREMONT, O. Bd. Educ., Fremont, O. Bids Mar. 22. CD 2/18;

E. W. File Co., 333 N Jackson St., Lima, O. **$409,500.** plumbing and heating work (Fremont, O.

▲ **Bowman Constr. Co. Inc.**, 1127 S. Branson St., Marion, Ind. LB Est. **$1,200,000.** 3 story penthouse rein.-con. HOSPITAL addn., MARION, IND. Marion General Hospital, Euclid and Wabash Sts., Marion, Ind. Bids Mar. 12. CD 2/21.

▲ **Morrison Constr. Co.**, 1834 Summer St., Hammond, Ind. and **Braden Steel Co.**, 1007 E. Admiral St., Tulsa, Okla. CA **$1,287,000.** tank farm, pumping building, fire equipment bldg. and control bldg., SCHERERVILLE, IND. Tecumseh Pipe Line Co., Box 611, Elkhart, Ind.

Bauer Bros. Constr. Co., 424 Lebanon Ave., Belleville, Ill. CA Est. **$600,000.** 2 story, brick, stone, structural concrete Parochial SCHOOL, S. 2 St. between Harrison and Lincolin Sts., BELLEVILLE, ILL. St. Peter's Catholic Cathedral Parish, Rev. Greogry J. Hug, pastor and Most Rev. Albert R. Zuroweste, bishop, Belleville, Ill. CD 2/8/56.

▲ **Dunbar Builders Corp.**, 2637 W. Peterson Ave., Chicago, Ill. Own Forces. **$2,000,000.** 25 four-unit APARTMENT BLDGS., Budlong Woods and West Ridge Park, CHICAGO, ILL.

Edwin E. Hartrich & Son, 141 W. Jackson Blvd., Chicago, Ill., CA **$500,000.** 1 story, 46,000 sq. ft. brick, WAREHOUSE and OFFICE, 30 and North Ave., MELROSE PARK, ILL. John Baumgarth Co.,

North Ave., Melrose Park, Ill. Albert Eiseman, Jr., 927 S. La Salle St., Chicago, Ill., archt.

Carr Builders, Inc., 4727 N. Monticello Ave., Chicago, Ill., CA $776,898. Washington Irving SCHOOL Addn., 1101 Cuyler Ave., OAK PARK, ILL. Oak Park School Dist. 97, 122 Forest Ave., Oak Park, Ill. Bids Mar. 21. CD 4/1, under LB.

Peters Constr. Co., 2640 N. Humboldt Ave., Milwaukee, Wis., CA Est. $400,000. BANK and OFFICE, MILWAUKEE, WIS. Teutonia Bank, 2803 N. Teutonia Ave., Milwaukee, Wis. Bids Mar. 20. CD 5/30.

The Christman Co., 408 Kalamazoo Plaza, Lansing, Mich. LB $729,800. general constr. 2 story, 75x250 ft. CONTROL LABORATORY Michigan State University, EAST LANSING, MICH. State, A. N. Languis, dir., State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. Bids Mar. 14. CD 2/13.

▲ Darin & Armstrong, Inc., 2041 Fenkel St., Detroit, Mich. CA $3,787,296. general constr. SENIOR HIGH SCHOOL, incl. 2 swimming pools, FERNDALE, MICH. City, Bd. Educ., 130 E. Nine Mile Rd., Ferndale, Mich. Bids Mar. 22. CD 3/12;
Page Plumbing & Heating, 100 W. Pleasant St., River Rouge, Mich. CA $971,362. mechanical work. (Ferndale, Mich.).

George W. Lathrop Constr. Co., Shaw Lane, East Lansing, Mich. LB $589,700. general constr. HIGH SCHOOL, incl. 4 bldgs., HOLT, MICH. Bd. Educ., Holt Pub. Schools, Margret Salm, secy., Holt, Mich. Bids Mar. 14. CD 3/5.

Perron Constr. Co., 6525 Lincoln St., Detroit, Mich. CA Est. $500,000. WAREHOUSE and OFFICE, LANSING, MICH. McKesson & Robbins, Inc., 515 W. Jefferson St., Detroit, Mich. Kenneth C. Black & Lee Black, 706 Capital Savings & Loan Bldg., Lansing, Mich., engrs.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

Colo., Colorado Springs—BA 4/16—City, 18 S. Nevada Ave., water supply line, incl. installing approx. 57,000 ft. 24 in. steel pipe line. CD 2/28.

† Iowa—CULTURAL STATION—BA 4/16—Fish & Wildlife Service, 1006 W. Lake St., Minneapolis, Minn., FW 3-2893, cultural station ½ mi. from Fairfax and 8 mi. from Muscatine.

† Colo., Colorado Springs—DORMITORIES—BA 4/18—Contg. Officer Air Force Academy Constr. Agency, P.O. Box 1670, support personnel dormitories incl. three 3 story, 86x58 ft., concrete frame buildings, Air Force Academy, IFB 05-613-57-30. CD 8/5/54.

Iowa, Osceola—BA 4/18—City, Milan Blake, clk., 300,000 gal. water storage tank on 100 ft. tower, foundations involving 1,220 cu. yd. concrete, etc. Over $50,000. Plans deposit $15. Rowat-Murray, Engineers, Belmond, engrs.

Iowa, Council Bluffs—BA 4/22—City, City Hall, street imprvs. $315,000. Henningson, Durham & Richardson, 2962 Harney St., Omaha, Neb. engrs.

Missouri—BA 4/22—State Conservation Comn., William E. Towell, acting dir., 219½ E. High St., Jefferson City, constr. earth-fill levees, concrete water control structures, incidental work and lay and install 4,619 lin. ft. pipe lines, etc. for constr. 14½ acre experimental pools on Hunnewell Wildlife Management area 2 mi. north of Hunnewell in Shelby Co. Plans deposit $10.

† Neb., Lincoln—COMMISSARY FOOD SALES—BA 4/24—U. S. Eng., 1709 Jackson St., Omaha, Neb., commissary food sales and flashing for two maintenance hangars, Lincoln Air Force Base, ENG-25-066-57-1. CD 8/23.

† Okla., Clinton— PARKING — BA 4/24— Officer In Charge of Constr., Eighth Naval Dist. Building 16, U. S. Naval Station, New Orleans (Algiers) La. base entrance parking, Clinton-Sherman Air Force Base, NBy-9094, Spec. 9094/57. CD 9/20/55.

† N. M., Clovis—OPERATIONS BASE—BA 4/25—U. S. Eng., Box 1538, Albuquerque, operations base bldg. with control tower, Clovis Air Force Base, ENG-29-005-57-24. $200,000. CD 3/21.

† Mont., Great Falls—OPERATIONS BLDG.—BA 4/26—U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., 36x55 ft. rein.-con. operations addn. at Air Force Station, ENG-45-108-57-127. CD 8/24.

† S. D., Rapid City—ILAS MIDDLE MARKER—BA 4/26—U. S. Eng., 1709 Jackson St., Omaha, Neb. ILAS Middle marker, field maintenance shop and supply administration bldg., Ellsworth Air Force Base, Inv. 25-066-57-8. CD 1/23, under LB.

† Arkansas-Missouri—BA 4/30—U. S. Eng., P.O. Box 97, Memphis 1, Tenn., clean out and enlargement 6 mi. existing channel of Little Slough Ditch near Monette, Approx. Ditch Stations 0 plus 00-324 plus 00, in Dunklin Co., Missouri, and Craighead Co., Arkansas, beginning at point about 1,870 ft. north of Missouri-Arkansas State Line, about 7.5 mi. north of Monette, Ark., and extending downstream for approx. 6.1 mi., ENG-40-041-57-169. CD 12/24/43.

Minn., Elgin—BA 5/2—Village, R. Stevens, clk., sanitary sewers, waste treatment plant, sewage pumping station, 19,000 lin. ft. 8 in. sanitary sewers, 6 in. force main, etc. $200,000. Plans deposit $20. Banister Eng. Co. 1549 University Ave., St. Paul, engrs. CD 11/7/55.

† New Mexico—BA About 5/3—U. S. Eng., P.O. Box 1538, Albuquerque, repair and restoration flood control works, Raton, CIVENG-29-005-57-11.

† Colo., Colorado Springs — PHYSICAL EDUCATION COMPLEX—BA 5/9—Contg. Officer, Air Force Academy Constr. Agency, P.O. Box 1670, approx. 148x141 ft., 20,870 sq. ft., support personnel physical education complex for Air Force Academy Site, IFB 05-613-57-26. CD 2/20.

† New Mexico—BA 5/9—Bureau Reclamation, Dpt. Interior, Albuquerque, modifications to radial gate, at El Vado Dam, Arriba Co., Middle Rio Grande Spec. DC-4883. CD 9/4.

† Tex., Kelly Air Force Base—BA 5/9—U. S. Eng., Box 282, Bldg. 60, Kelly Air Force Base, A.N.G. facilities, taxiway, apron, road, etc. ENG-41-243-57-39. $500,000-$1,000,000.

BUILDINGS—BA

Minn., St. Paul—DORMITORY—BA 4/16—Hamline University, 1536 Hewitt Ave., women's dormitory. $670,000. Extended date. Magney, Tusler & Setter, 303 Roanoke Bldg., Minneapolis, archts. CD 2/28.

Mo., Warrenton — SCHOOL — BA 4/16 — Reorganized School Dist. No. 3, Warren Co., 1 story, brick, steel high school addn. Plans deposit $25. Pearce & Pearce, Inc., 308 N. Sixth St., St. Louis, Zone 1, archts. CD 3/4, under LB.

▲ Neb., Omaha—APARTMENT—BA 4/16—Omaha Educational Assn., 927 City National Bank Bldg., 12 story apartment, 22 and Cass St. $1,000,000. J. E. Loftus, 3567 Leavenworth St., archt. CD 6/27/55.

▲ Tex., El Paso—COUNTY—BA 4/30—El Paso Co., Courthouse, remodel county bldg. $1,500,000. Extended date. Monroe, Licht & Higgins, 827 E. Yandell Blvd., archts. CD 3/26.

S. D., Sioux Falls—CHURCH—BA 4/24—First Presbyterian Church, c/o Harold Spitznagel & Assocs., archts., 1800 S. Summit Ave., 173x255 ft., L-shaped brick, concrete church. $500,000-$700,000.

▲ Kan., Merriam—SCHOOL—BA 4/30—Rural High School Dist. 6, Johnson Co., (Shawnee Mission School Dist.), Dr. Howard D. McEachen, supt. Schools, 7401 Johnson Dr., Merriam, Meadowbrook Junior High School, consisting of four separate units with center courtyard. $1,250,000. Extended date, Donald R. Hollis, W. 75 and U. S. 50, P.O. Box 71, Overland Park, consult. archts., Perkins & Will, 309 W. Jackson Blvd., Chicago, Ill., archts. CD 2/19.

HEAVY CONSTRUCTION—LB & CA

Asconite Asphalt Co., 2018 W. 79 St., Minneapolis, Minn. LB $235,524. (6 bidders) bit. surf. various streets, BLOOMINGTON (P. O. MINNEAPOLIS), MINN. Village, M. A. Hall, clk., Bloomington, Minn. Bids Mar. 29. CD 3/13.

J. Brown Constr. Co., Mankato, Minn. LB $125,167. (7 bidders) grav. base, road-mixed bit. surf. 5 mi. near Woodstock and 7.4 mi. near Jasper, PIPESTONE, MINN. Pipestone Co., Marion Noble, aud., Pipestone, Minn. Bids Mar. 26. CD 3/8.

IOWA—State Hy. Comn., Ames,
Fort Dodge Limestone Co., 522 S. 22 St., Fort Dodge, Iowa, CA $114,165. b. conc. 5.097 mi. T-198 (7), Wright Co. Bids Mar. 5. CD 2/20.

▲† Art Schinkat & H. G. Selley Corp., DeSmet, S. D., CA $1,257,499 Sch. F, entire project, levees and channel alterations, Unit 1, Section 11 C, Little Sioux River, near Onawa, Inv. 25-066-57-66, IOWA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Mar. 14. CD 3/20, under LB.

† Union Electric Co., Route 2, Box 943, Phoenix, Ariz., LB $194,776, est. $202,357. 161- and 230-kilovolt addns. to Sioux City Sub-station Transmission Div., Missouri River Basin Proj., Spec. DC 4834, IOWA, Bureau Reclamation, Dpt. Interior, Huron, S. D. Bids Mar. 12. CD 1/29.

Hennessey Bros., 4001 First Ave., Cedar Rapids, Iowa, LB $222,000. Area B, sanitary sewers in City Island, DUBUQUE, IOWA. Bd. Dock Comrs. City Hall, Dubuque, Iowa. Bids Mar. 7. Bartels & McMahan Eng. Co., 212-214 Stampfer Bldg., Dubuque, Iowa, engrs. CD 1/17/55.

Fort Dodge Constr. Co., Fort Dodge, Iowa, LB $101,409. sanitary sewer imprvs., extens. in various streets and avenues, FORT DODGE, IOWA. City, Robert H. McClelland, city clk., Fort Dodge, Iowa. Bids Mar. 12. Buell & Winter, 508 Insurance Exchange, Sioux City, Iowa, engrs.

Booth & Olson, 529 Insurance Exchange Bldg., Sioux City, Iowa. CA $228,465, paving, MASON CITY, IOWA

† Universal Constr. Co., 1202 S.W. Blvd., Kansas City, Kan. LB $318,600, est. $343,191 (8 bidders) 1 story, brick non-commissioned officers' club, Grandview Air Force Base, ENG-57-68, GRANDVIEW, MO. U. S. Eng., 1800 Federal Office Bldg., Kansas City, Mo. Bids Mar. 28. CD 3/1.

Skrainka Constr. Co., 7173 Delmar Blvd., University City 6, Mo. LB $145,922, est. $118,700 (3 bidders) grading, storm sewers, b. conc. misc. site imprvs., etc. at North Hampton Park at Hampton and Marquette Aves., ST. LOUIS, MO. City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 Blvd. and Market St., St. Louis 3, Mo. Bids Mar. 26. CD 2/28.

ARKANSAS—State Hy. Dpt., State Capitol, Little Rock, Bids opened 3/27,
Graves Bros., Inc., Dollarway Rd., Pine Bluff, Ark., LB $128,312. approx. 6.8 mi. grading, gravel base minor drainage and double bituminous surface on State Hy. 35 from Rison southward, Cleveland Co., CD 3/19.

▲ ARKANSAS—State Hy. Dpt., State Capitol, Little Rock, Bids opened 3/27,
Ark.—Graves Bros., Inc., Dollarway Rd., Pine Bluff, Ark., LB $88,494. grav. base, double bit. surf. tr., one precast rein.-con. slab span bridge 2.081 mi. Ark. Post St. Park Rd., Arkansas Co.;
Ark.—M. E. Gillioz Co., Monett, Mo., LB $217,468; single bit. surface and 3 bridge length culverts approx. 8.8 mi. State Hy. 21 between Metalton and Berryville, Carrol Co.;
Ark.—Don Hudson Co., West Helena, Ark., LB $311,204. double bit. surface, 8.4 mi. State Hy. 1 near Marianna, Lee Co.;
Ark.—W. B. Jeffery Constr. Co., 4201 Towsen St., Fort Smith, Ark., LB $1,006,354. concrete bridges (4 main and 10 small) 7.4 mi. U. S. Hy. 67 between North Little Rock and Jacksonville, 4 bridges I-beam deck spans, 10 slab bridges, Pulaski Co.;
Ark.—Ben M. Hogan & Co., 1100 Fairview St. and Reynolds & Williams, 3200 Brown St., Little Rock, Ark., LB $1,900,037 (joint bid) 720 ft. bridgework 2.9 mi. U. S. Hy. 67 from south city limits of c. conc. pavement with culverts and shoulders, Pulaski Co. CD 3/20.

† U. S. Eng., P. O. Box 867, Little Rock, Ark., received no bids Mar. 28, airfield pavement at Fort Smith Municipal Airport, FORT SMITH, ARK. $100,000-$500,000. CD 2/7.

† Peterson, Gabri & Joseph, 123 E. 9th St., North Little Rock, Ark., LB $229,300, est. $216,498. 76x150 ft. commissary sales store, concrete masonry walls, concrete fdns. utilities, sidewalks, drives, Little Rock Air Force Base, ENG-030-050-57-34, JACKSONVILLE, ARK. U. S. Eng., P. O. Box 867, Little Rock, Ark. Bids Mar. 28 (delayed bid date). CD 3/5.

† Roten Constr. Co., 1122 Pine St., North Little Rock, Ark., LB $158,135, est. $169,180; 32x62 ft. and 62x176 ft. exchange sales store addns, concrete floor, at Little Rock Air Force Base, JACKSONVILLE, ARK. U. S. Eng., P. O. Box 867, Little Rock, Ark. Bids Mar. 26, CD 3/21.

▲† F. R. Comb Co., 2901 Aldrich Ave. S., Minneapolis, Minn. CA $1,424,159. Schedule 1, Group II bldgs. at Air Force Base, ENG-25-066-57-48, GRAND FORKS, N. D. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids Mar. 1, awarded Mar. 27. CD 3/8, under LB.

Dutoit Constr. Co., 4908 Lister St., Kansas City, Mo. LB $467,749. sewage treatment plant, primary clarifiers, rotary filters, digestors, final tanks, sludge beds, pumping station, piping, electrical work and fencing, OLATHE, KAN. City, City Hall, Olathe, Kan. Bids Mar. 22. CD 3/13.

OKLAHOMA—State Hy. Dpt., Capitol, Oklahoma City, Zone 5,
Okla.—Jones & Phillips, 629 S. Reno St., El Reno, Okla., CA $90,258, est. $100,630. concrete, steel bridge over Euchee Creek on Hy. 33 east of Cushing, Payne Co.;
Okla.—Gragg Constr. Co., Henryetta, Okla., CA $169,765. 4 concrete, steel bridges on Hy. 2 near Kinta, Haskell Co. Bids Mar. 26, awarded Mar. 27. CD 3/14.

▲ OKLAHOMA—State Hy. Dpt., Capitol, Oklahoma City, Zone 5,
Okla.—H. D. Youngman, Baxter Springs, Kan., CA $1,069,799. stab. aggreg. base with b. conc. surf. 4.932 mi. 4-lane U. S. 69 north and in McAlester Pittsburgh Co.;
Okla.—Quapaw Constr. Co., Picher, Okla., CA $452,339 stab. aggreg. base, b. conc. surf. 7.919 mi. U. S. 75, Okmulgee Co.;
Okla.—Elliott Bros., Perry, Okla., CA $88,917. asph. stab. base with bit. surf. 1.679 mi. Hy. 74, Logan Co.;
Okla.—W. E. Logan & Sons, Barnes Bldg., Muskogee, Okla., CA $311,425. grading, drainage 6.435 mi. Hy. 2, Haskell Co.;
Okla.—Park-Ward Co., Commerce Exchange Bldg., Oklahoma City, Okla., CA $88,557. rock asph. surf. 7.008 mi. State Hy. 93, Choctaw Co.;
Okla.—Curtis Constr. Corp., Tri State Bldg., Tulsa, Okla., CA $304,405. c. conc. 1,202 mi. U. S. 62, Muskogee Co.;
Okla.—Merritt-McKnight Co., McAlester, Okla., CA $139,766. grading, draining 0.913 mi. Hy. 33, Payne Co.;
Okla.—Dahlgren Constr. Co., Commerce Exchange Bldg., Oklahoma City, Okla., CA $487,030. stab. aggreg. base, c. conc. wid'n. 5.331 mi. U. S. 81, Kingfisher Co.;
Okla.—Jack Briscoe, 414 E. 11 St., Stillwater, Okla., CA $758,751. c. conc. 5.612 mi. U. S. 62, Cherokee Co. Bids Mar. 26. CD 3/14. Grand total $3,700,989.

Continental Pipe Line Co., c/o 1300 Main St., Houston, Owner Builds. $385,000. conversion 99 mi. 6 in. products line, from near Wichita Falls to Fort Worth area, TEXAS. CD 2/21.

Ransdell Constr. Co., 270 Meadows Bldg., Dallas, Tex., CA $174,300. Contr. 4, water pump station, ABILENE, TEX. City, City Hall, Abilene, Tex. Freese & Nichols, 407 Danciger Bldg., Fort Worth, Tex., engrs. Bids Mar. 7.

Worth Constr. Co., 300 Green Lee St., Fort Worth, Tex., LB $218,514, est. $220,000; alternate 2-concrete wid'n. and repaving NW 28th St., FORT WORTH, TEX. City, c/o Dr. Jack Garrison, mayor, Fort Worth, Tex. C. M. Thelin, Fort Worth, Tex., dir. pub. wks. CD 3/13.

▲ Brown & Root, Inc., Box 3, Houston, Tex., LB $1,659,325 Base Bid. Shepherd Memorial Grade Separation or Overpass, HOUSTON, TEX. City, City Hall, Houston, Tex. Bids Mar. 27, CD 3/11.

B. L. English Constr. Co., Box 10155, Houston, Tex., LB $186,368. sanitary sewers, Jensen Dr., McClelland St., in HB&T Railway area, HOUSTON, TEX. City, City Hall, Houston, Tex. Frank Baldwin, Houston, Tex., Dir. Pub. Wks. Eng. Bids Mar. 6, CD 3/4.

West Texas Constr. Co., Inc., Box 5067, N. College Station St., Lubbock, Tex., CA $419,875. asphalt type

street paving, LUBBOCK, TEX. City, City Hall, Lubbock, Tex. John Hickerson, Lubbock, Tex., city engr. Bids Mar. 14, CD 2/18.

▲ **Exco, Inc.**, 6730 Peerless, Houston, Tex., CA Est. Approx. $1,000,000; dam on Cox Creek, 550,000 cu. yd. excavating, concrete discharge structure, 560-ft. width concrete spillway, Point Comfort, PORT LAVACA, TEX. Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh, Pa.

▲† **Farnsworth & Chambers, Inc.**, Box 74, Houston 1, Tex., LB $4,710,596, est. $3,000,000-$5,000,000, Schedule 1, addnl. bldgs. for School of Medicine, Brooks Air Force Base, ENG-41-243-57-30, SAN ANTONIO, TEX. U. S. Eng., Box 1229, Galveston, Tex. Bids Mar. 27. CD 3/12.

H. B. Zachry Co., c/o Constr. Div., Box 10188, San Antonio 21, Tex., LB $143,243, est. $161,000. reconstr. 2.5 mi. stretch on Basse Rd., SAN ANTONIO, TEX. City, City Hall, San Antonio, Tex. Bids Mar. 25. CD 3/13.

† **MONTANA**—Bureau P. Rds., Dpt. Commerce, Post Office Bldg., Missoula.

Holmes Constr. Co., Heyburn, Idaho. LB $455,869. (18 bidders) surf., paving 28.6 mi. Swan River Hy. Proj. 15-A3, D1, E1, G1, N1, Lake and Missoula Counties. Bids Mar. 27. CD 3/13.

† **Cherf Bros. & Sandkay, Inc.**, Ephrata, Wash. LB $357,606. (11 bidders) 2,785 ft. earthfill dam, 76 ft. high to create regulating reservoir, Helena Valley Irrigation Proj., near Helena, Lewis and Clark Co., MONTANA. Bureau Reclamation, Dpt. Interior, P. O. Box 551, Helena, Mont. Bids Mar. 26. CD 2/20.

† **Sletten Constr. Co.**, 1301 10 Ave. N., Great Falls, Mont. CA $897,385, est. $922,708 (6 bidders) ammo storage facilities at Malmstrom Air Force Base, ENG-57-28, GREAT FALLS, MONT. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Mar. 26. CD 2/20.

† **Ray Mathews Nurseries**, 1154 Post Road, Norwood, R. I., CA $118,036, landscaping of non-irrigated areas at Air Force Academy Site, IFB 05-613-57-23, COLORADO SPRINGS, COLO. Contracting Officer, Air Force Academy Constr. Agency, P. O. Box 1670, Colorado Springs, Colo., CD 1/22.

BUILDINGS—LB & CA

Kraus-Anderson, Inc., 501 S. Eighth St., Minneapolis, Minn. CA $350,000. general constr. 2 story, 110x165 ft. MOTEL, 301-239 10 St. South, MINNEAPOLIS, MINN. Curtis Hotel, C. C. Melony, mgr., 10 St. and Fourth Ave. S., Minneapolis, Minn. CD 1/23/56.

M. Shapiro & Sons, Inc., 400 Alta Dena Court, University City 24, Mo. Owner Builds. $550,000. 53 addnl. brick, concrete RESIDENCES in Reavis Gardens No. 3 on Revis Barracks Rd. between Union and MacKenzie Rds., AFFTON (St. LOUIS 23, P. O.), MO.

John Epple Constr. Co., 1417 Hickory St., Columbia, Mo. LB $345,000. general constr. two 2 story DORMITORY units, 1 story DINING HALL, FULTON, MO. Westminster College, Bd. Trustees, J. Layton Mauze, pres., Fulton, Mo. Bids Mar. 19. CD 2/27.

E. A. Brunson Constr. Co., 4052 Forest Park Blvd., St. Louis 8, Mo. CA $930,166. 1 story, rein.-con., brick masonry JUNIOR HIGH SCHOOL, Manchester Rd. west of Gayer Rd., incl. Little School Bldg., admin. bldg., gymnasium, KIRKWOOD (ST. LOUIS 22 P. O.), MO. Kirkwood School Dist. R-7, Bd. Educ., Alva L. Crow, supt. Schools, 516 S. Kirkwood Rd., Kirkwood 22, Mo. Bids Mar. 19, awarded Mar. 26. CD 4/1, under LB.

E. A. Brunson Constr. Co., 4052 Forest Park Blvd., St. Louis 8, Mo. LB $619,950. general constr. 1 story rein.-con., brick, masonry JUNIOR HIGH SCHOOL Manchester Rd. west of Geyer Rd., KIRKWOOD (ST. LOUIS 22 P. O.), MO. Kirkwood School Dist. R-7, Bd. Educ., Alva L. Crow, supt. Schools, 516 S. Kirkwood Rd., Kirkwood 22, Mo. Bids Mar. 19. CD 2/27.

▲ **Gamble Constr. Co.**, 5730 Wise Ave., St. Louis 10, Mo. CA Est. $1,500,000. general constr. 6 story, bsmnt., brick, rein.-con. office addns., 3 story top addn. to present 3 story office wing, alterations to existing office, ST. LOUIS, MO. Ralston-Purina Co., 835 S. Eighth St., St. Louis 2, Mo. Bids Mar. 12. CD 3/6.

▲ **A. H. Haeseler Building & Contg. Co.**, 2346 Palm St., St. Louis 7, Mo. CA Est. $1,200,000 general constr., 4 story HOME for the AGED, 5200 S. Broadway, ST. LOUIS, MO. The Good Samaritan Home for the Aged, H. H. Gieselman, pres., 4500 Washington Ave., St. Louis 8, Mo. Bids Mar. 13. CD 2/15.

Willingham Constr. Co., 5245 Northrup Ave., St. Louis 9, Mo. CA $343,526. general constr. 2 story, 67x233 ft., brick, steel HIGH SCHOOL, UNION, MO. Union School Dist. R-X1, Bd. Directors, Vergil H. Sisson, supt. schools, Elementary School, Union, Mo. CD 2/15, under LB.

▲ **Dickmann, Pickens & Bond**, Gazzette Bldg., Little Rock, Ark., CA Est. $4,000,000 MFG. PLANT and MIDCONTINENT PARTS DEPOT, FORREST CITY, ARK. Yale & Towne Mfg. Co., 407 Lexington Ave., New York 17, N. Y. Ginocchio-Cromwell & Assocs., 416 Center St., Little Rock, Ark., archts. CD 2/1.

Dickmann, Pickens & Bond Constr. Co., Gazette Bldg., Little Rock, Ark, CA Est. $500,000. general constr. 2 story, bsmnt., 46,000 sq. ft. floor space, TELEPHONE BLDG. addn., LITTLE ROCK, ARK. West Capital Ave., Capital Ave. Bldg. Co., c/o Erhart, Eichenbaum, Ranch & Blass, archts., 201 Chester St., Little Rock, Ark. CD 3/25.

Stoneberg Constr., Lead, S. D., LB $596,000. HIGH SCHOOL, STURGIS, S. D. Bd. Educ., Sturgis, S. D. Bids Mar. 20. CD 3/12.

Bennett Constr. Co., 1310 State St., Kansas City, Kan. LB $387,090. AUDITORIUM UNIT HIGH SCHOOL 75 and Mission Rd., MERRIAM, KAN. Bd. Educ., Shawnee Mission School Dist., Dr. Howard F. McEachen, supt., 7401 Johnson Dr., Merriam, Kan. Neville, Sharp & Simon, 25 E. 12 St., Kansas City, Mo. and Perkins & Will, 309 W. Jackson Blvd., Chicago, Ill., archts. Bids Mar. 20. CD 2/8.

O. J. Beck & Sons, 340 Westchester St., Corpus Christi, Tex. LB $352,880 est. $350,000. SCHOOL ROOM ADDNS., GREGORY-PORTLAND, TEX. Gregory-Portland Consolidated School Dist., Gregory-Portland, Tex. Bids Mar. 18, CD 1/3.

Lufkin Constr. Co., Box 717, Lufkin, Tex., CA $519,950. Base contr. 2 story BANK AND OFFICE, LUFKIN, TEX. Lufkin National Bank, Lufkin, Tex. Mackie & Kamrath, 2713 Ferndale St., Houston, Tex., archts. Raymond L. Jenkins, 4926 Travis St., Houston, Tex., engr. Bids Mar. 19.

▲ **Fluor Corp., Ltd.**, c/o M. Esperson Bldg., Houston, Tex., CA $1,000,000. PLANT, SUGARLAND, TEX. Visco Products Co., Inc., 2600 Nottingham St., Houston, Tex. CD 3/29.

▲ **Burns Constr. Co.**, Burns Vault Bldg., Denver, Colo. LB $819,000, 4 story rein.-con., brick, block DORMITORY for 250 girls, DENVER, COLO. Loretto Heights College, 3001 S. Federal Blvd., Denver, Colo. Bids 3/15, CD 12/12/55.

FAR WEST

HEAVY CONSTRUCTION—BA

† **ARIZONA**—BA 4/23—Bureau Reclamation, Yuma, Spec. 300C-96 Gila proj., Wellton-Mohawk Division, constr. protective dike for Dome canal, Sta., 65 plus 75 to 668 plus 13, L. N. McClellan, Bldg. 1, Denver Federal Center, Denver, Colo., chf. engr. archt. CD 9/4.

Calif., Mendocino—BA 4/23—State Div. Architecture, 1120 N. St., Sacramento, constr. two 500,000 gal. steel water tanks, pump house, chemical control house, installing water lines, etc. for water storage reservoir at Mendocino State Hospital, $180,000. CD 4/26/56.

▲ **Calif., Los Angeles**—BA 4/26—Los Angeles County Flood Control Dist., 12250 Alcazar St., rein.-con. conduit for Dominguez Channel from Denker to Vermont Aves., $1,500,000. CD 1/25.

† **Arizona-Utah**—BA 4/30—Bureau Reclamation, Dept. Interior, Kanab, Utah, surfacing and guard rail for access highway, Glen Canyon Dam, Colorado River Storage Project in Navajo Indian Reservation at Coconino Co., Ariz. Spec. DC-4887. adv. ENR 4/11, CD 9/7.

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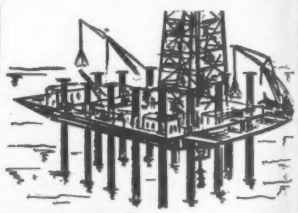

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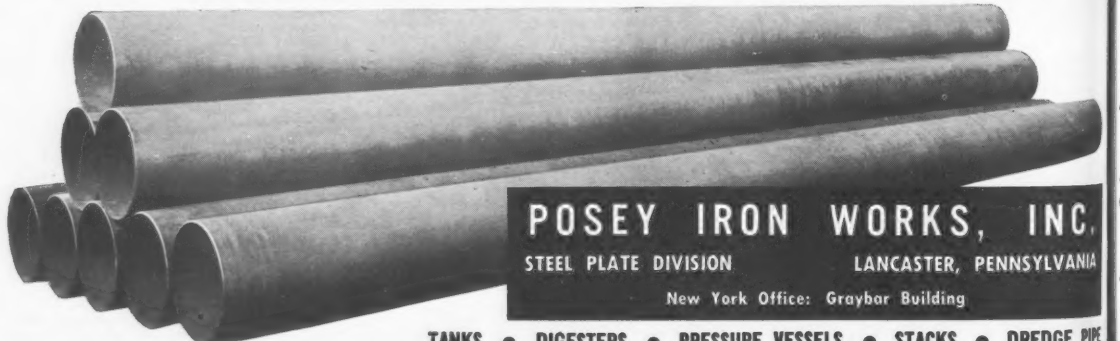

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† Utah—BA 5/1—Bureau Reclamation, Dpt. Interior, Regional Office No. 4, 32 Exchange Pl., Salt Lake City, transmission tie lines, Provo River Proj., Spec. 400C-81. CD 9/10.

▲ Calif., Los Angeles—BA 5/3—Los Angeles County Flood Control Dist., 12250 Alcazar St., constr. Storm Drain Proj. 54, Pico Blvd. and Fairfax Ave. Storm Drain, $1,300,000. CD 1/25.

▲ Calif., Los Angeles—BA 5/22—City Council, City Hall, enlarging Hyperion Treatment Plant, 4 primary clarifiers, new rein.-con. headwork bldg., etc. $4,045,000. CD 4/31/55.

BUILDINGS—BA

Ore., Portland—SCHOOL—BA 4/18—Multnomah School Dist. No. 3, Parkrose, 19613 N. E. Prescott St., constr. Parkrose Heights Junior High School, Parkrose. Annand, Boone & Lei, 1530 S. W. Taylor St., archts.

▲ Utah, Salt Lake City — SCHOOL — BA 4/23—Salt Lake City Bd. Educ., 440 E. First St. South, Northwest Junior High School, 1250 N. 13 St. W. $1,550,000. William F. Thomas, Union Pacific Annex Bldg., archt. CD 3/1/56.

▲† Calif., Lompoc — BLDG. REHABILITATION — BA 4/24—U. S. Eng., 751 S. Figueroa St., Los Angeles. rehabilitation of bldgs. at Camp Cooke, ENG-04-353-57-84, $2,000,000. CD 3/5.

Calif., Long Beach—FINE ARTS BLDG.—BA 4/24—State Div. Architecture, 1100 S. Grand Ave., Los Angeles, constr. 1 story with detached 1 story wing, 21,040 sq. ft. and 1,750 sq. ft. floor areas, and 7,760 sq. ft. covered entrance, walks and passage, Fine Arts Bldg., Long Beach State College. $450,500. Plans deposit $25. CD 4/24/56.

BUILDINGS—SLC

Nev., Reno—CHURCH—First Baptist Church of Reno, c/o Culvert Heaton, archt., 259 S. Los Robels Ave., Pasadena, Calif., and Milford Weaver, archt., 133 N. Sierra St., Reno, soon lets contract, 100 x 200 ft. masonry church, $350,000.

HEAVY CONSTRUCTION—LB & CA

† Chicago Bridge & Iron Co., 550 W. 17 St. S., Salt Lake City, Utah. LB $167,400. water tank at Atomic Plant, ARCO, IDAHO. Atomic Energy Comn., Idaho Operations Office, Idaho Falls, Idaho. Bids Mar. 6. CD 2/20.

Knudson Constr. Co., 602 North St., Ogden, Utah. CA $119,644. Section 6, Outlet Sewer No. 2, sewerage imprvs. Central Weber Sewer Imprvt. Dist., OGDEN, UTAH. City, City Hall, Ogden, Utah. Bids Mar. 4. CD 2/19.

† T. A. Tiberti Constr. Co., 1414 Industrial Rd., Las Vegas, Nev. LB $298,754, est. $333,596. (20 bidders) constr. unmanned gap filler facilities at Quinn River, Unionville, Gabbis and Lathrop Well, ENG-04-167-57-36, NEVADA. U. S. Eng., 1209 Eighth St., Sacramento, Calif. Bids Mar. 26. CD 3/5.

WASHINGTON—State Toll Bridge Auth., Olympia, Bids opened 3/26,

Independent Iron Works, Inc., 8 and Pine Sts., Oakland, Calif. LB $569,000. (3 bidders) steel superstructure of Port Washington Narrows bridge on Secondary State Hy. 21-B in Bremerton, Kitsap Co. CD 2/25.

WASHINGTON—State Hy. Comn., Olympia, Bids opened 3/26,

Wash.—M. J. Kuney Co., N 120 Ralph St., Spokane, Wash. LB $458,823. (4 bidders) clearing, draining, grading, 5.56 mi. Primary State Hy. 2, IN 002-6 (18) Unit 2, Spokane Co.;

Wash.—N. Fiorito Co., 844 W. 48 St., Seattle, Wash. LB $315,287. (5 bidders) grading, surf. c. conc. paving, installing illumination sys. 0.619 mi. Primary State Hy. 1, FAP U-001-3 (13) King Co. Bids Mar. 26. CD 3/11.

WASHINGTON—State Hy. Conn., Olympia, Bids Opened 3/26,

C. B. Croy, 2502 Lakeway Dr., Bellingham, Wash. LB $143,791 (9 bidders) rein.-con. slab bridge for Iowa St. overcrossing on 0.026 mi. Primary State Hy. 1. FAP 1-001-5 (16) Whatcom Co. CD 3/11.

† L. W. Vail Co., 1948 N. 4 St., Pasco, Wash., CA $554,715. street imprvs., etc., RICHLAND, WASH. Atomic Energy Comn., Richland, Wash. Bids Mar. 19. CD 3/27, under LB.

▲† Hall-Atwater, Inc., Box 3023, International Station, Seattle, Wash. and O. A. White Constr. Co., Walla Walla, Wash., CA $2,825,924. 8.5 mi. access road, five 1 story masonry buildings, concrete water storage tank, concrete fdns., for 3 towers for aircraft control and warning facilities, Specs. 6631/56, KLAMATH FALLS, ORE. P. Wks. Officer, Thirteenth Naval Dist., Naval Station, Seattle, Wash. Bids Mar. 19. CD 3/22, under LB.

▲† Alwood Corp., 203 E. Broadway, Burbank, Calif., LB $2,610,415. San Antonio and Chino Creek imprvs., San Antonio Dam to Holt Ave., CIVENG-04-353-57-31, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 6. CD 3/11, under LB.

▲ CALIFORNIA—State Div. Hys., 1120 N. St., Sacramento, Bids opened 3/13,

Guy F. Atkinson Co., 10 West Orange Ave., South San Francisco, Calif., CA $6,345,594. constr. 4.4 mi. freeways on U. S. 101 between 1 mi. south of Dyerville and Englewood and constr. 4 bridges, Humboldt Co. CD 3/15, under LB.

▲† R. A. Westbrook, Morrison-Knudsen Co. & H. Earl Parker, Inc., 6431 Elvas Ave., Sacramento, Calif. LB $8,009,783 Basic Bid, est. $9,550,348 primary runway (concrete) and related facilities at Beale Air Force Base, near Marysville to convert it into Strategic Air Command Heavy Bomber Base, ENG-04-167-57-42, BEALE AIR FORCE BASE, CALIF., U. S. Eng., 1209 8th St., Sacramento, Calif. Bids Mar. 21. CD 2/26.

Hallmark Constr. Co., Chino, Calif., CA $663,162. Unit B constr. arterial water system for Dist. 1, CARLSBAD, CALIF. Municipal Water Dist., City Hall, Carlsbad, Calif. CD 2/5, under LB;

J. Putnam Henck, 3947 Sierra Way, San Bernardino, Calif., CA $147,533; regulating reservoir. (Carlsbad, Calif.)

† Ets-Hokin & Galvan, Inc., P.O. Box 13036, San Diego, Calif. LB $631,631. (8 bidders) electrical distr. system, Naval Amphibious Base, Spec. 7409-56. CORANADO, CALIF. Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids Mar. 21. CD 10/22/54.

▲ H. B. Nicholson & Van Valkenburg, 880 East Colorado Blvd., Pasadena, Calif., CA $3,876,050 constr. Pump Delivery Line No. 3, Spec. 519, steel plate pump delivery pipe line at 5 pumping plants 6 and 10 in diam., San Bernardino and Riverside Counties, LOS ANGELES, CALIF. Metropolitan Water Dist., 306 W. 3 St., Los Angeles, Calif. Bids Mar. 22. CD 3/27, under LB.

J. H. Trisdale, Inc., P.O. Box 779, Redding, Calif. CA $146,773. (3 bidders) grading, surfacing portion of Co. Hy. 17-C, near Dana, REDDING, CALIF. Shasta Co., c/o Co. Clerk, Courthouse, Redding, Calif.

D. D. Altermatt, Kentfield, Calif. LB $166,200, est. $22,426. (10 bidders) constr. aviation fuel storage base at Mather Air Force Base, ENG-04-167-57-43, SACRAMENTO, CALIF. U. S. Eng., 1209 8th St., Sacramento, Calif.

Rogers Constr. Co., 3851 Witherby St., San Diego, Calif. LB $156,314. (5 bidders) sanitary sewers, Pacific Hy., Bean to Witherby Sts., and in Kurth St., Coots to Witherby Sts., DOC 548426, SAN DIEGO, CALIF. City, Civic Center, 1600 Pacific Hy., San Diego, Calif. Bids Mar. 21. CD 11/7/52.

N. A. Lamb, 103 West El Caminito Ave., Campbell, Calif. CA $98,152. K roof over grandstand at Fairgrounds, SAN JOSE, CALIF. Santa Clara Co., c/o Bd. Supervs., Courthouse, San Jose, Calif. CD 3/7.

John H. McCosker, 1501 East Shore Hy., Berkeley Calif. CA $136,988. (5 bidders) sewers, appurtenances, structures in Sleepy Hollow area, near Orinda, WALNUT CREEK, CALIF. Central Contra Costa Sanitary Dist., c/o Dist. Mgr., 1250 Springbrook Rd., Walnut Creek, Calif. CD 8/13.

Granite Constr. Co., Rd. 96, Woodland, Calif. LB $122,630. (6 bidders) wid'n., surfacing portions Rds. 124 and 126 and Hy. 50, WOODLAND, CALIF. Yolo Co., c/o Clerk Bd. Supervs., Courthouse, Woodland, Calif. A. E. Rhoades, Jr., Courthouse, Woodland Calif., engr.

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BUILDINGS—LB & CA

M. Morrin Co., 473 West Second St., Ogden, Utah, $440,952. Lewis Elementary SCHOOL, OGDEN, UTAH Ogden City School Bd., 2351 Grant Ave., Ogden Utah. Bids Mar. 28. CD 3/14.

F. H. Antrim Constr. Co., 1003 E. Indian School Rd Phoenix, Ariz. LB $472,000. 3 SCHOOL PLANT ADDNS. in Glendale Dist., GLENDALE, ARIZ. Glendale School Dist., Glendale, Ariz.

Vernon Harmon Constr. Co., 3101 N. 40th St., Phoenix Ariz. LB $491,557. two ELEMENTARY SCHOOL PLANTS, PHOENIX, ARIZ. Alhambra School Dist 3001 N. Hazelwood St., Phoenix, Ariz.

▲ **Nelson Constr. Co.**, 3504 N. Monroe St., Tacoma Wash., LB $1,753,900 general contract 13 rein.-con 188,000 sq. ft. Woodrow Wilson SENIOR HIGH SCHOOL BUILDINGS, TACOMA, WASH. School Dist No. 10, S. 8 and Tacoma Sts., Tacoma, Wash. Bids Mar. 29. CD 3/7;
Bergh-Griggs Plumbing & Heating Co., 709 Pacific St., Tacoma, Wash., LB $444,000 mechanical work (Tacoma, Wash.).

Gerstenberger & Pierson, 4814 W. Jefferson Blvd. LA $460,490, est. $500,000. (7 bidders) 31,000 sq. ft. SILVER SPUR ELEMENTRY SCHOOL (formerly Montemalaga) PALOS VERDES, CALIF. Palos Verdes School Dist., 32 Crest Rd., Rolling Hills, Calif. Bids Mar. 20. CD 11/28.

Leader Constr. Co., 5844½ E. Beverly Blvd., Los Angeles, Calif. CA $573,300. 1,010 sq. ft. 68 DWELLINGS, Mauna Loa, Linfield Sts., SAN DIMAS CALIF Keith Garrick, 5844 E. Beverly Blvd., Los Angeles, Calif.

CANADA

BUILDINGS—BA

Ont., Port Arthur—PLANT—BA 4/15—Canada Malting Co. Ltd., Head Office, foot of Bathurst St., Toronto plant expansion, incl. (1) 150x20x80 ft. and (2) 170x87x88 ft., rein.-con. buildings. $250,000. C. D. Howe Co., Ltd., Public Utilities Bldg., engrs.

Ont., Ottawa—SCHOOL—BA 4/16—City, Ottawa Public School Bd., 330 Gilmour St., D. Roy Kennedy School exten., Woodroofe Ave. $500,000. Burgess & McLean, 53 Queen St., archts. CD 1/5/55.

BUILDINGS—SLC

Ont., Toronto—GARAGE—Canadian Pacific Ry. Co., C. A. Colpitts, ch. engr., Head Office, Montreal 3, Que. soon lets contract, 17 story 90x200 ft., garage opposite Royal York Hotel with overpass from hotel to garage $800,000. H. K. Ferguson Co. of Canada Ltd., 10 College St., Toronto, Ont., engrs. CD 3/5/56.

▲ **Sask., Saskatoon**—OFFICE—Great West Life Assurance Co., Lombard St., Winnipeg, Man., soon lets contract, 5 story office. Over $1,000,000. Stuart Ramsey & Assocs., 2041 Hamilton St., Regina, archts.

HEAVY CONSTRUCTION—LB & CA

Carter Constr. Co. Ltd., 419 Cherry St., Toronto, Ont., LB $971,745. rein.-con. grade separation subway under Canadian Pacific Ry. on Bloor St. W. west of Islington, TORONTO, ONT. Municipalities of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids Mar. 18. CD 3/7.

▲ **Pentagon Constr. Co.**, 5005 Namur St., Montreal, Que., CA Est. $8,000,000. 34,000 to 40,000 hp generating plant power development and Dufferin Falls in Lievre River, Buckingham, QUEBEC. The James MacLaren Co. Ltd., Buckingham, Que. Shawinigan Eng. Co. Ltd., 600 Dorchester St. W., Montreal, Que., engrs. Awarded Mar. 26.

▲ **J. D. Stirling Ltd.**, 940 Cote de Liesse Rd., Montreal, Que., LB $1,176,680 substructure south of Pier 23 Honore Mercier Bridge exten. Lachine Section of Seaway, QUEBEC. St. Lawrence Seaway Auth., No. 3 Temporary Bldg., Ottawa, Ont. Bids Mar. 26. CD 3/11

Louisbourg Constr. Ltd., 10150 Blvd. St. Laurent, Montreal, Que., LB $153,125. sewers, water mains Metropolitan Blvd., MONTREAL, QUE. City, City Hall Montreal, Que. CD 12/17.

▲ **Pacific S.E. Alberta Ltd.**, Regina, Sask., CA $1,726,185. gas distr. system, REGINA, SASK. Saskatechan Power Corp., Third Floor, Trading Co. Bldg., Regina, Sask. Awarded Mar. 22. CD 12/4.

BUILDINGS—LB & CA

▲ **Koppers Co. Inc.**, Koppers Bldg., Pittsburgh 19, Pa., CA $5,500,000 design and construct 45 Koppers-Becker COKE OVENS for steel plant, HAMILTON, ONT. Dominion Foundries & Steel Ltd., Depew St., Hamilton, Ont. CD 10/12/55.

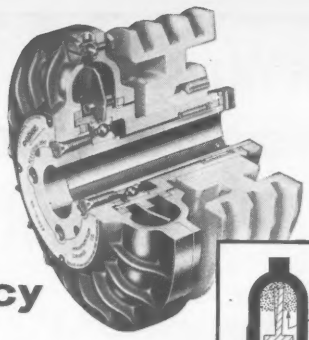
▲ **Construction Mount Royal Ltd.**, 960 Jean Talon E. Montreal, Que., CA Est. about $1,000,000. APPRENTICE TRAINING BLDG., Parthenais St. and Laurier Ave. E., MONTREAL, QUE. Montreal Building Trades Apprentice Training Comn., 2225 Laurier Ave. E., Montreal, Que. Awarded Mar. 25. CD 2/14.

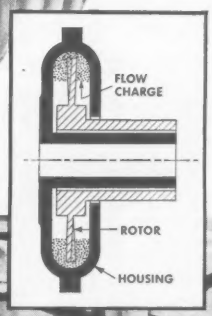
Barnabe & Fils Ltee, 1205 Second Ave., Quebec City, Que., CA About $600,000. 2 wings, 119x54 ft. and 127x49 ft. brick, stone, concrete Normal SCHOOL, PONT ROUGE, QUE. Soeurs de la Charite de St. Louis de France, rue St. Louis de France, Bienville, Que. Paul E. Samson, 116 Cote de la Montagne, Quebec City, Que., archt. Leo Dufresne & Roger Mainguy, 915 St. Cyrille St. W., Quebec City, Que., engrs. Awarded Mar. 21.

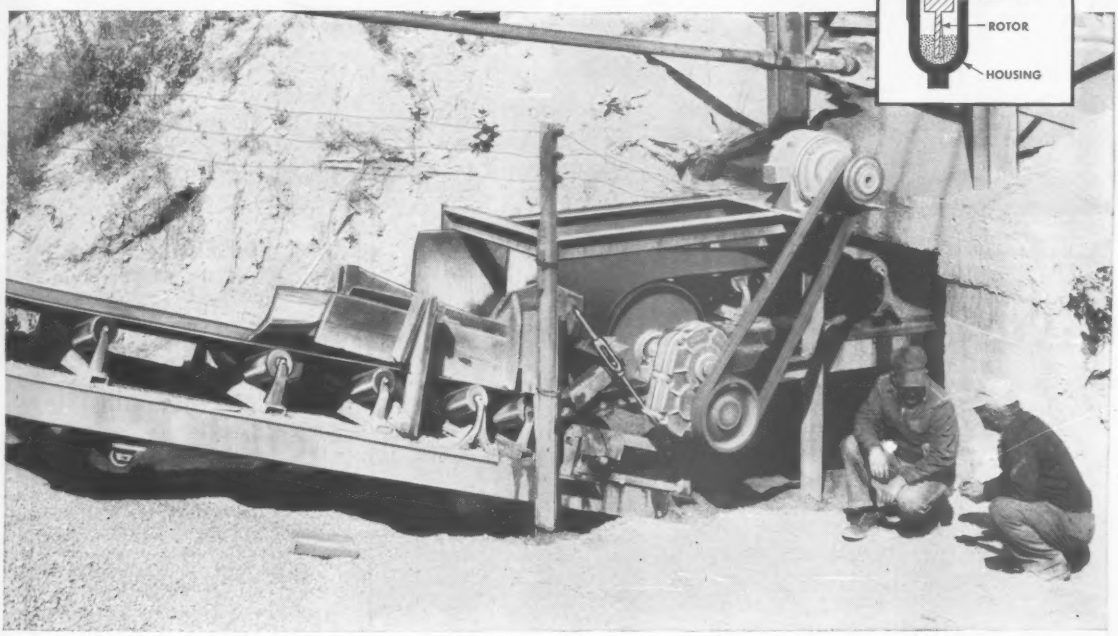
Maglore Cauchon, Ltd., 239 rue de la Salle, Quebec City, Que., CA $113,000. 2 story, 36x126 ft. PAPER

(Continued on page 128)

This new drive starts loads smoothly... with smaller motors ...and gives 100% efficiency at full load!







FLEXIDYNE
THE DRY FLUID DRIVE

This tunnel conveyor, 225 feet long, handles 500 tons of sand and gravel per hour—8 to 16 hours a day.

With Flexidyne, the motor picks up the load easily and smoothly. Power investment is reduced, power costs cut, maintenance simplified and conveyor belts are protected against breakage.

Flexidyne, the Dry Fluid Drive, is the *new* development that starts loads smoothly, that protects against shocks and overloads, that saves power and that gives 100% efficiency at full load!

The "dry fluid" in Flexidyne is heat treated steel shot. A measured amount, called the flow charge, is contained in the housing, which is keyed to the motor shaft. When the motor is started, centrifugal force throws the flow charge to the perimeter of the housing, wedging it between the housing and the rotor which transmits power to the load.

After a momentary slip between housing and rotor, the two become locked together and achieve full load speed without slip and at 100% efficiency during the running cycle. Changes in weather—hot or cold—inside or out—do not affect operation of Flexidyne.

Flexidyne is now available in 8 sizes—for use with electric motors and internal combustion engines from 1 hp to 300 hp. While each size is power rated, the flow charge can be varied at will to give tailor-made torque for your particular job. Write for Bulletin A-640.

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ADVERTISEMENT FOR BIDS

NORTHERN ILLINOIS TOLL HIGHWAY

Bids to be opened May 2, 1957

CONTRACT T-9A

The work to be done under this contract shall be commenced on June 1, 1957 or on such earlier date as may be mutually agreed upon between The Commission and the Contractor. All work under this contract shall be completed on or before December 15, 1958 and consist of: The grading, drainage, paving, the construction of appurtenances, and the erection of precast concrete and steel bridges for approximately 2.29 miles of the Tri-State Route of the Northern Illinois Toll Highway in Construction Section T-9A thereof, beginning at a point about 3,400 feet south of center line of Touhy Avenue at Tri-State Route Centerline Station 2381 + 03.10 in Main Twp., Cook Co., Ill., and extending northerly to a point 860 feet north of the centerline of Busse Highway at Tri-State Route Centerline Station 2502 + 00 in Maine Twp., Cook Co., Ill.

The approximate quantities of the principal items of work are:

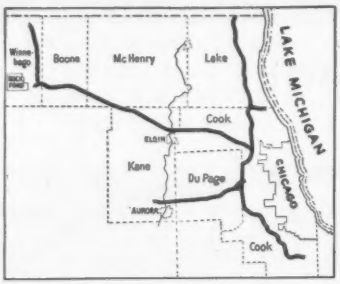
Roadway Excavation	95,000 C.Y.
Borrow	1,050,000 C.Y.
Selected Subgrade	51,000 C.Y.
Granular Subbase	33,500 C.Y.
10" Reinforced PCC Pavement	136,600 S.Y.
3" Bituminous Concrete Shoulders	45,000 S.Y.
Structure Concrete	17,500 C.Y.
Reinforcing Steel	1,990,000 Lbs.
Metal Piles	78,000 L.F.
Structural Steel (erection only)	3,220,000 Lbs.

CONTRACT T-9B

The work to be done under this contract shall be commenced on June 30, 1957 or on such earlier date as may be mutually agreed upon between The Commission and the Contractor. All work under this contract shall be completed on or before December 15, 1958 and consist of: The grading, drainage, paving, the construction of appurtenances, and the erection of precast concrete bridges for approximately 2.10 miles of the Tri-State Route of the Northern Illinois Toll Highway in Construction Section T-9B thereof, beginning at a point about 860 feet north of the centerline of Busse Highway at Tri-State Route Centerline Station 2502 + 00 in Maine Twp., Cook Co., Ill. and extending northerly to a point about 2,996 feet north of the centerline of Golf Road at Tri-State Route Centerline Station 2612 + 95.41 in Maine Twp., Cook Co., Ill.

The approximate quantities of the principal items of work are:

Roadway Excavation	46,000 C.Y.
Borrow	1,380,000 C.Y.
Selected Subgrade	66,600 C.Y.
Granular Subbase	38,000 C.Y.
10" Reinforced PCC Pavement	112,800 S.Y.
3" Bituminous Concrete Shoulders	57,000 S.Y.
Structure Concrete	7,400 C.Y.
Reinforcing Steel	875,000 Lbs.
Metal Piles	4,000 L.F.



CONTRACT T-9AB

The work to be done under this contract which covers a combination of Contracts T-9A and T-9B shall be commenced as stated above for each contract and shall be completed on or before Dec. 15, 1958. It consists of the work as above described for the individual contracts taken together.

CONTRACT T-1C

The work to be done under this contract shall be commenced on June 30, 1957, or on such earlier date as may be mutually agreed upon between the Commission and the Contractor. All work under this contract shall be completed on or before December 15, 1958 and consists of: The grading, drainage, paving, seeding, the construction of all bridges, culverts and other appurtenances for approximately 5.009 miles of the Northern Illinois Toll Highway in Construction Section T-1C thereof, beginning at a point approximately 125 feet west of Wood Blvd., U. S. Highway 54, at the Northern Illinois Toll Highway Centerline Station 294 + 78.50 in Thornton Twp., Cook Co., Ill., and extending westerly and northwesterly to a point approximately 467 feet east of the centerline of the Chicago, Rock Island and Pacific R. R. at Northern Illinois Toll Highway Centerline Station 559 + 28.63 in Bremen Twp., Cook Co., Ill.

The approximate quantities of the principal items of work are as follows:

Borrow	2,185,000 C.Y.
Roadway Excavation, Unclassified	158,000 C.Y.
Special Excavation	225,000 C.Y.
Selected Subgrade	86,000 C.Y.
Granular Subbase	78,000 C.Y.
10" Reinforced P.C.C. Pavement	197,500 S.Y.
3" Bituminous Concrete Shoulders	98,000 S.Y.
Structure Concrete	15,300 C.Y.
Reinforcing Steel	1,827,000 Lbs.

THE ILLINOIS STATE TOLL HIGHWAY COMMISSION

20 N. Wacker Dr., Chicago — **By Austin L. Wyman, Chairman**

Write, wire or phone for detailed information and necessary forms, Chief Engineer, Room 1654, 20 N. Wacker Dr., Chicago 6, Ill. Telephone FRanklin 2-7020.

Previously advertised bids for Contract T-13B will be opened April 25, 1957.

(Continued from page 126)

MILL ANNEX, QUEBEC CITY, QUE. Anglo-Canadian Pulp & Paper Mills Ltd., 10 Blvd. des Capucins, Quebec City, Que. Awarded Mar. 25.

Stanislas Grondin, 218 10 Ave., Sherbrooke, Que., CA Est. about $225,000. WAREHOUSE EXTEN., Roy St., SHERBROOKE, QUE. Denault Ltd., 1025 Cabana St., Sherbrooke, Que. Awarded Mar. 25. Albert Poulin, 1115 Prospect St., Sherbrooke, Que., archt. Cote, Lemieux, Carignan & Borque, 144 Vimy St. E., Sherbrooke, Que., engrs.

▲ **R. E. Stewart Constr. Corp.,** 862 Wellington St. S., Sherbrooke, Que., CA Est. $1,000,000. superstructure for two bays each 80x320 ft., rein.-con., frame, structural steel frame, brick PLANT EXTEN., Roy St., SHERBROOKE, QUE. Combustion Engineering Superheater Ltd., 731 Galt St., Sherbrooke, Que. Bids Mar. 1. CD 2/20.

▲ **R. E. Stewart Constr. Corp.,** 862 Wellington St. S., Sherbrooke, Que., CA Est. About $2,000,000. ASBESTOS MILL, Robertson Rd., THETFORD MINES, QUE. National Asbestos Mines, Ltd., Thetford Mines, Que. Awarded Mar. 25. CD 5/31.

ALASKA

HEAVY CONSTRUCTION—LB & CA

† **Denali & McCray,** Juneau, Alaska, LB $413,929, est. $364,660 flood control project Gold Creek, Juneau, CIVENG 57-3, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Mar. 26.

▲† **Peter Kiewit Sons' Co.,** 1300 Aloha St., Seattle, Wash., LB $1,414,469, est. $1,291,135 (2 bidders) extens runway, constr. access road and installing high intensity lighting at airport, Inv. 57-39, GALENA, ALASKA. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Mar. 27.

LATIN AMERICA

BUILDINGS—LB & CA

▲ **Koppers Co., Inc.,** Koppers Bldg., Pittsburgh 19, Pa., U.S.A., CA Est. $16,000,000. design and construct open hearth furnaces for STEEL MILL, HUACHIPATO, CHILE. Compania de Acero del Pacifico, Santiago, Chile.

U. S. POSSESSIONS

HEAVY CONSTRUCTION—LB & CA

▲† **Hawaiian Dredging Co. Ltd.,** 1350 Ala Moana, Honolulu, T. H., LB $3,100,000. 100x566 ft. steel, concrete hangar, 110,000 sq. ft. 12 in. rein.-con. cement for parking apron and asph. taxiway Naval Air Station, NBy 8007, BARBER'S POINT, T. H. Dist. P. Wks. Office, 14th Naval Dist., P. Wks. Officer, Pearl Harbor, T. H. Bids Mar. 22. CD 3/1.

AMERICANS ABROAD

BUILDINGS—BA

† **Korea, Seoul**—RESIDENCE, etc.—BA 4/15—U. S. Dpt. of State, Foreign Bldgs., Wash., D. C., U. S. A. embassy residence and staff housing. Ernest J. Kump, 450 Ramona St., Palo Alto, Calif., U. S. A., archt. CD 1/16.

† **West Africa, Ghana**—OFFICE, etc.—BA About 5/1—U. S. Dpt. of State, Foreign Bldgs., Wash., D. C., U. S. A., consulate general office bldg. and staff housing. Henry Weese, 104 S. Michigan Ave., Chicago 3, Ill., U. S. A., archt. CD 2/13/56.

PROPOSED PROJECTS

WATER SUPPLY

Ill., Wheaton—City, City Hall, water supply expansion $685,000. W. E. Deuchler & Co., 63 S. La Salle St., Aurora, consult. engrs.

Ill., Winnetka—Village, Village Hall, underground water storage tank west limits near Willow Rd. $300,000. Greeley & Hansen, 220 S. State St., Chicago, consult. engrs.

Mass., Needham—Town, Water Dpt., water pumping station, Central Ave. $180,000. Constr. in 1957.

Mich., Saginaw—Zilwaukee Twp., Saginaw Co., Saginaw, water sys., storage facilities, distr. water mains, $180,000, The Francis Engineering Co., 301 Eddy Bldg., consult. engr.

Mo., Odessa—City, City Hall, defeated $248,000 bonds Mar. 12. addnl. WW supply. imprvs., extens., etc. Mark B. Layne, 114 W. 19 St., Higginsville, consult. engr. CD 2/25.

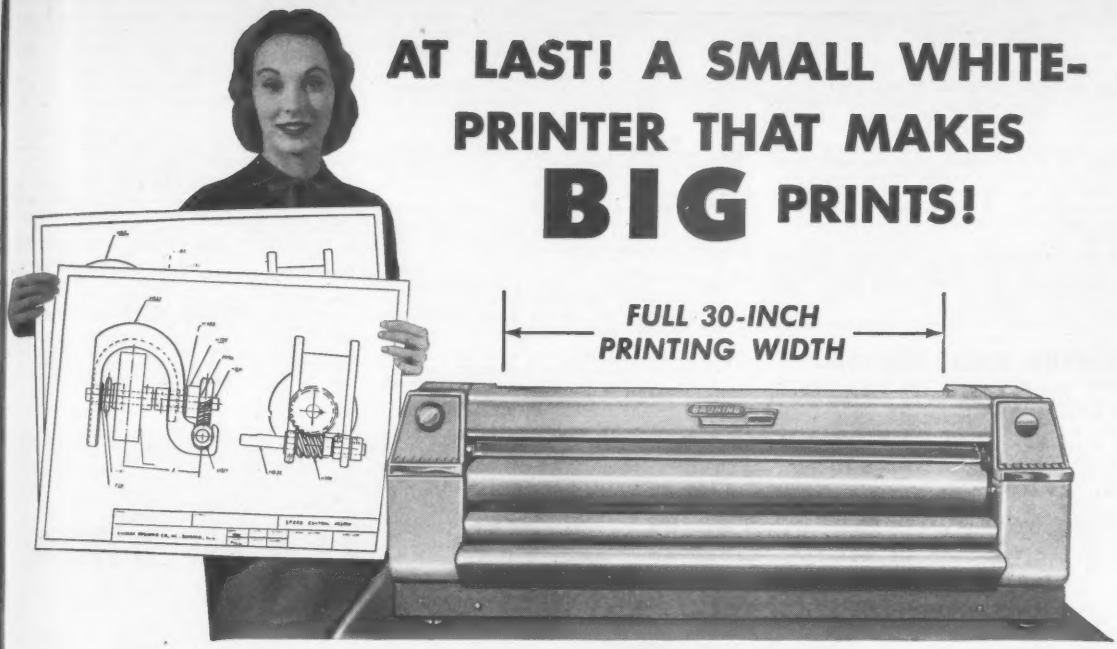
N. Y., Attica—Village, voted bonds Mar. 19, water sys. modernization, providing new water storage well at filtration plant, lay 12 in. main and connect dead-end water lines $250,000. Charles J. Schwalenstocker, village clk. CD 3/18.

O., Cincinatti—City, City Hall, water mains, Compton Rd., section to Hamilton and Springdale Rds. $419,000, Constr. in 1958; water mains 77 St. to Wayne Ave. and RR 126, $343,000, Constr. in 1958; water mains Ridge to Reading Rds., $780,000; water mains, State Ave., $150,000; water mains, tanks at Wardell to Bridgetown and Ebenezer Rds., $246,000, Constr. in 1957. Black & Veatch, 1500 Meadow Lake Parkway, Kansas City, Mo., consult. engrs. CD 5/19/54.

O., Columbus—City, City Hall, Stelzer Rd. water line, first phase to run from Morse Rd. filtration plant to

(Continued on page 130)

AT LAST! A SMALL WHITE-PRINTER THAT MAKES BIG PRINTS!



BRUNING NEW! Copyflex Model 300!

Brings "Inside" Reproduction within the Means of the Smallest Engineering Firm or Department!

Now, with your low-cost, versatile Model 300, you can make high quality prints when you want them—rapidly, privately, and in any quantity. You can exercise complete control over valuable originals at all times.

Provides Large Companies an Economical Way to Supplement Main Reproduction Centers!

With its compact size, big printing width, and low cost, the Model 300 is an ideal helper for your big reproduction machine. Strategically located throughout your company, Model 300s can bring new speed, convenience, and efficiency to your reproduction operations.

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If you're pressed by the boom in production for more and more engineering prints, the all-new Copyflex Model 300 is your answer! Its low initial cost combined with outstanding economy and convenience of operation and maintenance make it your soundest, low-cost investment of the year. Mail coupon today! You'll be glad you did!

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(Continued from page 128)

7 Ave. $900,000. Paul Laux, c/o owner, water supt. CD 12/18/52.

▲ Okla., Okmulgee—City, City Hall, defeated bonds Mar. 15, ww extens. $1,975,000. CD 3/7.

S. D., Brookings—City, City Hall, water treatment plant. $150,000. J. T. Banner & Assocs., 1104 5 St., consult. engrs. CD 12/31.

Tex., Banquette—Nueces Co. Water Control & Imprvt. Dist. No. 5, J. P. Hughson, Banquette, water system. Proj. PFL-V41-27. $185,000. Donoho & Cross, 1102 Basse Rd., San Antonio, consult. engrs. CD 1/16.

Tex., Eagle Pass—City, City Hall, ww., $200,000. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs.

▲ Tex., Sherman. City, c/o Robert L. Brown, mgr., Sherman, defeated bonds Mar. 16, water lines from Lake Texoma, $1,992,000; water system imprvs. $308,000. CD 3/1.

Tex., Stockdale—City, City Hall, water system. $150,000. Frank T. Drought, Box 8147, Laurel Heights Station, San Antonio, Consult. engr.

SEWERS, WASTE DISPOSAL

Calif., Oceanside—City, City Hall, bond election Apr. 16, imprv. city sewage disposal sys. $650,000. CD 10/18/55.

Fla., Orlando—City, City Hall, sewage treatment plant to serve Glenn L. Martin Co. and residents of that area, $700,000. Smith & Gillespie, 123 E. Forsythe St., Jacksonville, consult. engrs. CD 6/10/54.

Ga., Dalton—City, City Hall, sewage disposal plant, $500,000. CD 10/4/49.

Ill., Harvard—City, City Hall, sewage disposal plant addn., Rte. 173, $110,000. Beling Eng. Co., 306 Park Ave., Rockford, consult. engr.

Iowa, Davenport—City, Frank Haas, clk., City Hall, sewage treatment plant addn., auxiliaries, appurtenances. $800,000. Romine, Sindt & Snow, 319 Union Arcade, Davenport, Iowa, and Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago, Ill., consult. engrs. CD 12/3/52.

▲ Kan., Coffeyville—City, Denver Hargis, mayor, sewage disposal plant adjacent to plant 3½ mi. southeast of city, related facilities; modification present lift station; clearing existing sewers, $1,216,000. A. C. Kirkwood & Assocs., 7800 Paseo Rd., Kansas City, Mo., consult. engrs. CD 10/3.

▲ La., Harahan—City, sanitary sewerage sys. $1,647,-015. CD 6/7/51.

Mass., Dudley—Town, Bd. Sewer Comrs., sewers. $300,-000-$400,000. Haley & Ward, 73 Tremont St., Boston, consult. engrs.

Mass., Framingham—Town, Dpt. P. Wks., sewer extens. $300,000. Haley & Ward, 73 Tremont St., Boston, consult. engrs.

Mass., Lexington—Town, Bd. P. Wks., Town Office Bldg., sewers. $130,000. Whitman & Howard, Inc., 89 Broad St., Boston, consult. engr. Bids in April.

Mass., Marblehead—Town, Sewer Bd., sewer exten. $100,-000. Haley & Ward, 73 Tremont St., Boston, consult. engrs.

▲ Mich., Gibraltar — Village, Village Council, voted bonds Mar 18, sewerage sys. $1,475,000 CD 2/15.

▲ Miss., Clarksdale—City, City Hall, sewerage sys. $1,250,000.

Mo., Elmo—City, City Hall, sewerage sys. $129,000.

Mo., St. Louis County—Metropolitan St. Louis Sewer Dist., William O. Kehr, exec. dir., 506 Olive St., St. Louis, Zone 1, voted $750,000 bonds Mar. 19, trunk and sub trunk sewers in Sub Dist. 1 of River Des Peres Watershed (Creve Coeur and Frontenac area) to serve 12 square mi. section, Horner & Shifrin, Shell Bldg., 1221 Locust St., St. Louis Zone 3, consult. engrs. CD 2/22.

Mo., St. Louis County—Metropolitan St. Louis Sewer Dist., William O. Kehr, exec. dir., 506 Olive St., St. Louis, Zone 1, constr. subtrunk and lateral sewers in Iveland Subdistrict, incl. area of south of Lackland and north of Rock Island R.R. tracks between the sewer district bounded on west and Meadowbrook Downs on east. $150,000-$250,000. Paul-Johns, Inc., 410 Buder Bldg., 707 Market St., St. Louis, Zone 1, consult. engrs.; constr. subtrunk and lateral sewers in North Webster Subdistrict, incl. unincorporated area between Rock Hill, Brentwood and Webster Groves and sections with their city limits to extent of area's watershed. $100,000-$150,000. R. W. Booker & Assoc., 1722 Olive St., St. Louis, Zone 3, consult. engrs.; constr. subtrunk and lateral sewers in Wellston Subdistrict, incl. portion of Wellston Pagedale and Greendale and unincorporated areas in unsewered portion of Wellston branch of the River des Peres watershed lying south of Normandy Sewer District terminating near Olive Blvd. $250,000-$400,000. Sverdrup & Parcel, Inc., 915 Olive St., St. Louis, Zone 1, consult. engr. CD 8/14/44.

Mont., Billings—City, 36 in. interceptor sanitary sewer through South Billings. $427,512, Sam Ward, city engr.

N. Y., Mount Vernon—City, reconstr. municipal incinerator. $680,000. Robt. A. Hurley Assocs., 99 Outlook Ave., West Hartford, Conn., consult. engrs. CD 8/16/44.

N D., Dickinson—City, City Hall, outfall sewer and lagoon. $274,500.

O., Akron—Comrs. Summit Co., Court House, sewage disposal system, Northampton Twp. $125,000. Leslie G. Wolfe, co. engr. CD 5/6/54.

O., Cleveland—Comrs. Cuyahoga Co., Court House, Zone 13, sewers to connect 4 eastern suburbs with Hilltop Sewer, known as Cedar-Richmond Trunk Sewer, approx. 3 mi. of sewer ranging from 8 to 30-in. $750,000. Bids late this Fall. Harry Gallimore, 3482 Lee Rd., Cleveland, Zone 20, consult. engr. John Puzenski, Standard Bldg., Zone 13, co. sanitary engr. CD 2/21.

O., Newtown—Village, Church St., sewage disposal plant. $400,000.

Ore., Roseburg—City, City Hall, sewers, $1,000,000; sewage plant, $600,000. Cornell, Howland, Hayes & Merryfield, Corvallis, Ore., consult. engrs. John Loosley, c/o owner, engr. CD 2/1/56.

▲ Pa., Reading—City, City Hall, sanitary sewerage sys. extension and constr. sewage disposal plant, $4,500,000. Mast Engineering Co., Inc., 325 Washington St., consult. engr. Edward Elbert, city engr. CD 5/4.

S. D., Brookings—City, City Hall, sanitary sewers. $180,-000. J. T. Banner & Assoc., 1104 5 St., consult. engrs. CD 12/31, under Water Supply.

Tex., Eagle Pass—City, City Hall, sanitary sewers, $150,-000. Black & Veatch, 4706 Broadway, Kansas City Mo., consult. engrs.

Tex., Sherman—City, City Hall, voted bonds, sanitary sewers (to 2 addns. in city) $150,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 3/1.

Wis., Lodi—City, City Hall, sewage disposal plant imprvs. $168,000. Baxter & Woodman, 68 N. William St., Crystal Lake, Ill., consult. engrs.

Wyo., Douglas—Town, Town Hall, voted bonds Mar. 1[illegible] sewage disposal sys. $102,275. J. T. Banner & Assoc., 201 Garlett Bldg., Laramie, consult. engrs. CD 3/1[illegible]

BRIDGES

Calif., Los Angeles—Bd. Supervs. Los Angeles Co., 5[illegible] Hall Records, bridge over Coyote Creek at Rosecran[illegible] Ave, $240,000; Bridge and culvert over Milan Cree[illegible] at Valley View Ave., $86,700; bridge over Milan Cree[illegible] at Marquardt Ave., $96,000; bridge and culvert [illegible] La Mirada Creek at Luitweiler Ave., $107,800; bridg[illegible] and culvert over La Mirada Creek at crossing Alond[illegible] Blvd. $193,600. All foregoing in La Mirada.

▲ CONNECTICUT—State Hy. Dpt., 165 Capitol Ave., Hartford,

Fairfield Co.—rebuilding Stony Brook Bridge and approaches Route U. S. 1, Westport. $75,000.

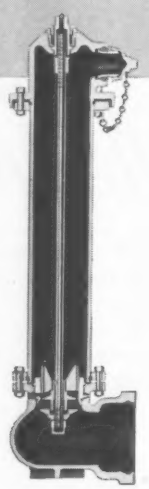
New Haven Co.—Route 34, Naugatuck River Bridge and approaches, from Route 8 and Route 115 Derby. $630,-000. Constr. in 1957-1958.

New London Co.—Route 156, Lieutenant River Bridge and approaches, Old Lyme. $1,200,000. Constr. 195[illegible]

NEBRASKA—State Dpt. Rds & Irrigation, Lincoln,

Cass Co.—bridge across Platte River and bit. surf. $445,000. L. N. Ress, state engr.

R. D. Wood, Leader Since



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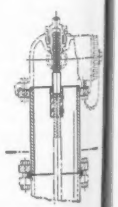
The R. D. Wood Standard Swivel Joint Hydrant gives you the most for your money in strength, reliability and sound design. The *all-bronze stuffing box*, gland and operating nut prevent rust and corrosion. Internal friction which might lower pressure is reduced to well below A.W.W.A. specifications by tapered nozzleways and carefully rounded changes in diameter.

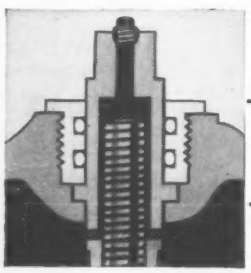
Breakable Flange and Stem Coupling

Available at slight extra cost. Designed to snap under a blow which would otherwise smash the hydrant, flange and stem coupling can be inexpensively and quickly replaced without excavation.



Extension Piece

Can be inserted without interrupting water flow.



Hydrants now available with O-Ring Seal when specified

NEBRASKA—State Dpt. Roads & Irrigation, Capitol Bldg., Lincoln,
Cass and Sarpy Counties—secondary bridge over Platte River north of Plattsmouth and reconstr. of 3 viaducts along Rd. 73 and 75, $1,000,000. L. N. Ress, state engr.
N. J., Paterson—Bd. Freeholders, Passaic Co., Court House, bridge over Pompton River on Rte. 202, $400,000. George Mason, Court House, co. engr.
Tex., Eagle Pass—City, City Hall, bridge, $100,000. Beretta, Greenslade & Assocs., Inc., 1927 N. St. Marys, San Antonio, consult. engr.
† WASHINGTON—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland, Ore.,
Clellan Co.—bridge on Olympia Hy. near Sappho. $285,000. Bids in May. F. E. Andrews, c/o owner, engr.
QUEBEC—Provincial Roads Dpt., Parliament Bldgs., Quebec City Que. and Canadian National Rys., 360 McGill St., Montreal, Que.
Garneau Junction—viaduct at Garneau Junction Laviolette County $250,000. Construction this year.

STREETS AND ROADS

▲ CONNECTICUT—State Hy. Dpt., 165 Capitol Ave., Hartford,
Fairfield Co.—relocation of Route 25, Bridgeport, Trumbull, Monroe and Newtown, $30,000,000. Bids in 1959-60.
rebuilding Route 8 from Bridgeport town line to Road 714, Shelton and Trumbull, $500,000. Constr. in 1958.
rebuilding Route 113, Nichols Ave. from 2A to Trumbull Town Line, Stratford $700,000, Constr. in 1957-1958.
repaving Route 1, Diamond Hill to Indian Field Road, Cos Cob, $100,000, Constr. 1957-1958.
Merritt Parkway interchanges, Greenwich $2,000,000. Constr. 1957-1958.
reconstr. Route 111 from Route 34 southerly ½ mile, Stevenson, $150,000, Constr. 1957-1958.
resurf., reconstr. interchanges, Merritt Parkway, $1,000,000, Constr. 1957-1958.
Middlesex Co.—Route 145 relocation on south of Route 80, Deep River and Westbrook, $265,000, Constr. 1958.
New Haven Co.—relocation of Route US 6 from Russian Village East to Route 67 (FAI) Southbury, $5,000,000, Constr. in 1958.
resurf. Route 1, 1½ mi. from Route 27 westerly Branford, $130,000, Constr. 1958.
Route 34 resurf. from Route 121 to Route 122 Orange and West Haven, $220,000, Constr. in 1958.
relocation of Route 8 from Ansonia Town Line to Route 67, Seymour, $3,000,000, Constr. 1957-1958.
reconstr. Route 5 from Route 5-A to Scrub Oak Road, North Haven, $700,000, Constr. in 1958.

† IDAHO—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland, Ore.,
Idaho Co.—grading 5 mi. Lewis & Clark Hy. east of Kooskia. $500,000. Bids in August. F. E. Andrews, c/o owner, engr.
▲ Ill., Chicago—Cook Co., County Bldg., bit. paving Ridge Rd., Oakton St., Devon and Lincoln Ave., Talcott Rd., 3.19 mi. $275,000; bit. paving 8.85 mi. Halsted and 154 St., George Grennan Hy., Michigan City Rd., $800,000; bit. paving 7.52 mi. Des Plaines River Rd., Ballard Rd., Greenwood Ave., Dempster St. $700,000.
Ill., Rockford—Winnebago Co. Hy. Dpt., 424 N. Springfield St., bit. surfacing and widening Alfine Rd. from Guilford to Charles St., Winnebago. $100,000.
† MONTANA—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland, Ore.,
Custer Co.—grade 8.2 mi. Deer Creek Rd. northeast of Ashland, $80,000, Bids in May.
Flathead Co.—pave 9.4 mi. Columbia Falls-Glacier Park Hy. east of West Glacier, $250,000, Bids in July.
Gallatin Co.—grade, surf. 7.8 mi. construct bridge West Gallatin Hy. south of Bozeman, $450,000, Bids in May.
Missoula and Lake Counties—pave 28.6 mi. Swan River hy. south of Big Fork, $800,000, Bids in March.
Stillwater Co.—grade 5 mi. of South Rock Creek Rd. northeast of Yellowstone Park, $350,000, Bids in August. F. E. Andrews, c/o owner, engr.
▲ NEBRASKA—State Dpt. Rds. & Irrigation, Lincoln,
Cass Co.—grading, structures, gravel on Neb. 150 from South Bend to jct. with Neb. 50, $210,000;
pavement and viaduct on Neb. 50 from Louisville south, $575,000.
grading, structures pavement, two viaducts on U.S. 73-75, Plattsmouth by pass, $1,020,000.
Douglas Co.—grading, structures, gravel on Neb. Rd. 31 from intersection of Neb. Hy 36 north, $200,000.
grading, structures paving from jct. of State 36 and U. S. 75 east, $250,000.
grading, structures, pavement, viaduct on Neb. Rd. 50 near Millard, $285,000.
pavement and subway on Neb. Rd. 38 from intersection of U. S. rd. 6 east to near Millard, $850,000.
grading, pavement on Neb. Fd. 31 Millard east, $400,000.
pavement on U. S. Hy 30A, Venice east, $80,000.
Sarpy Co.—grading, structures, grav. surf. and viaduct from Papillion east, $600,000.
grading, structures and pavement on Neb. Rd. 36 from jct. with U. S. Hy. 275 east, $250,000.
Washington Co.—grading, structures and pavement on Neb. 133 from U. S. Hy 30 south, $350,000, L. N. Ress, state engr.
NEBRASKA—State Dpt. Rds. & Irrigation, Capitol Bldg., Lincoln,
Sarpy Co.—c. conc. paving 6.2 mi. Hy. 370 west from Papillion. $765,000. L. N. Ress, State engr.
O., Cleveland—Comrs. Cuyahoga, Court House, Zone 13, resurf. 1.2 mi. Westwood Drive, Strongville $120,000. Albert S. Porter, co. engr. CD 11/10/55.
O., Delaware—City, City Hall, sidewalk imprvs. throughout city. $326,000. Donald Mackley, city engr. CD 9/24/52.
Okla., Bartlesville—Washington Co., Bartlesville, voted bonds Mar. 19, county roads and bridges, $427,000. Geo R. Benz, county engr. CD 2/28.
† OREGON—Bureau P. Rds., Dpt. Commerce, Moran Bldg., Portland, Ore.,
Jackson Co.—grading 8 mi. Stevens Forks Road near Watkins. $300,000. Bids in April. F. E. Andrews, c/o owner, engr.
Tex., Eagle Pass—City, City Hall, street imprvs., paving. $300,000. Beretta, Greenslade, & Assocs., Inc., 1927 N. St. Marys, San Antonio, consult. engr.
† WASHINGTON—Bureau P. Rds., Dpt. Commerce; Morgan Bldg., Portland, Ore.,
Chelan and Klickitat Counties—grading, surf. 4 mi., constr. bridge, Sunset Hy. at Blewett Pass, $560,000 Bids in June.
Yakima Co.—grading, surf. 4.1 mi. Mt. Adams Hy. north of Trout Lake. $180,000, Bids in June. F. E. Andrews, c/o owner, engr.
▲ WASHINGTON—State Hy. Comn., Olympia,
Skagit Co.—imprv. 7.9 mi. State Hy. 17-A, from Minkler lake to Hamilton, $1,145,000. Work may start this year on first 0.65 mi. section. W. A. Bugge, state hy. dir.

EARTHWORK, WATERWAYS

▲ CALIFORNIA—State Dpt. P. Wks., Pub. Wks. Bldg., Sacramento, Feather River Project, Oroville Dam incl. 4,000 ft. and 8,000 ft. con. lined tunnels, replacing 23 mi. track for Western Pacific Railroad. Bids in May.
relocating U. S. 40 from Wicks Corner to Jarboe Gap, incl. 3,500,000 cu. yd. excav.
2,825 ft. curved tunnel, 2,970 ft. tunnel and 2,700 ft. tunnel.
railroad and highway bridge over Feather River, 1,800 ft. from Lane highway, with lower deck single track railroad.
grading for new railroad,
bridge over south Fork, Feather River.
relocating Feather River Railroad.
logging railroad, roads, canal and utilities.
$50,000,000 ($25,190,000 appro.) CD 9/20/55.
▲ Connecticut—State Flood Control & Water Policy Comn., 165 Capitol Ave., Hartford, deepen waterways, fill low areas, grade for commercial development, relocate Still River, deepen channel, retaining walls, Danbury, $2,300,000; imprv. shopping area, widen and deepen Norwalk River, fill low areas, grade for commercial use, Norwalk, $589,000.
Connecticut—State Flood Control & Water Policy Comn., 165 Capitol Ave., Hartford, post flood redevelopment, fill low area and grade for commercial development, Ansonia. $545,500.

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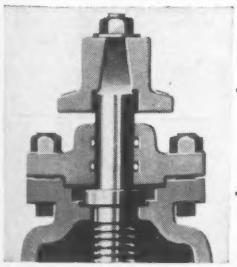

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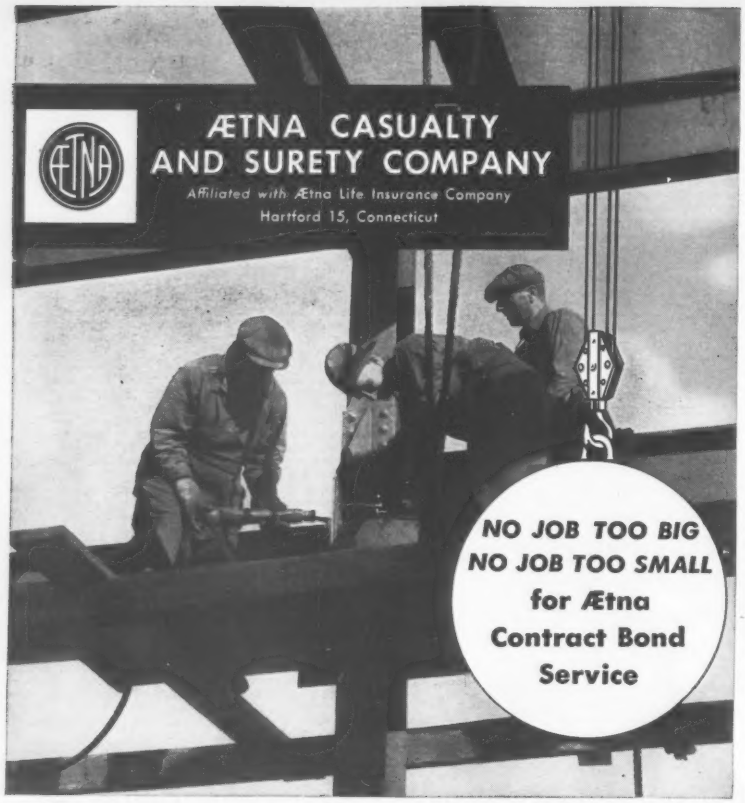

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Conn., **Fairfield**—Town, beach erosion control, 4 stone jetties at Fairfield Beach, **$81,960**; two 400 ft. jetties at Fairfield Beach, east of Penfield Reef, $100,000, CD 8/19/47.

Ohio—Ohio Dpt. P. Wks., State Office Bldg., Columbus, Stark-Hugle Run Watershed Project, dam across Hugle Run, for Div. Water of Ohio Dpt. Natural Resources, **$475,000.** CD 11/3/44.

Tex., **San Augustine**—City, City Hall, lake and dam for domestic water supply. **$275,000.**

Que., **Three Rivers**—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., dredging, St. Maurice River near St. Lawrence River, **$150,000.**

AIRPORTS

▲ Calif., **Santa Cruz**—MISSILE TEST CENTER PLANT—Lockheed Aircraft Corp., 7701 Woodley St., Van Nuys, missile test center plant for static testing rocket motors site 3,600 acres in Santa Cruz Mtns. **$1,000,000.**

▲† Ill., **Wheaton**—AIRPORT—DuPage County Airport, Court House, airport addn., administration bldg., control tower and restaurant, **$4,500,000.** Ralph H. Burke, Inc., 20 N. Wacker Dr., Chicago, Ill., consult. engr.

Neb., **Alliance**—AIRPORT—City, City Hall, airport imprvs. **$107,000.**

Pa., **Martinsburg**—RUNWAY, etc—Blair County Airport authority, Martinsburg, runway resurf. existing runways, relocation buildings, at Altoona-Blair County Airport, **$536,000,** Reliable Engineering Co., 2605 Beale Ave., Altoona, consult. engr. CD 7/14/48.

† Tex., **Ellington Air Force Base**—OFFICERS' OPEN MESS—U. S. Eng., Santa Fe Bldg., Galveston, plans by Zimmerman & Bible, archts. and consult. engrs., 500 Stuart Ave., Houston, design 27,800 sq. ft. officers' open mess and facilities, $350,000. CD 3/18/53.

Tex., **Houston**—HANGAR—Planes, Inc., 3402 Montrose St., constr. 54,000 sq ft. Hangar No. 3, **$200,000.**

LATIN AMERICA

▲ **Peru**—Government of Peru, Port Administration, Lima, plans ocean and river port survey. Tudor Engineering Co., 74 N. Montgomery St., San Francisco, Calif., U.S.A., consult. engr.

PUBLIC BUILDINGS

Ark., **North Little Rock**—SCHOOL—Bd. Educ., North Little Rock Public Schools, F. B. Wright, supt. Schools, 28 and Poplar Sts., plans by McAninch & Mahnker, 217 National Old Line Life Bldg. Little Rock, Junior High School. **$500,620.** CD 3/13.

▲ Calif., **Buena Park**—SCHOOL—Buena Park School Dist., Buena Park, voted $275,000 bonds Mar. 5, schools, **$1,025,000.**

▲ Calif., **Brea**—SCHOOL—Brea-Olinda Union High School Dist., P. O. Box 157, Brea, voted bonds, Mar. 5, schools, **$1,219,000.** Philmer J. Ellerbroek, 320 W. Coast Hy., Newport Beach, archt. CD 2/25.

▲ Calif., **Coalinga**—JUNIOR COLLEGE—Coalinga Union High School Dist., and Junior College, c/o Supt., Van Ness Ave., Coalinga, defeated bonds Mar. 15, Junior College, **$2,604,000.** Walter Wagner, & Assocs., 1830 Van Ness Ave., Fresno, archts. CD 1/22.

Calif., **Hillsborough**—SCHOOLS—Hillsborough Elementary School Dist., 545 Eucalyptus Ave., Burlingame, voted bonds Mar. 19, new elementary school and addnl. facilities in 3 other schools, **$990,000.** CD 10/24.

Calif., **Los Angeles**—SCHOOL—Los Angeles Bd. Educ., 1425 S. San Pedro St., plans by Thornton M. Abell, 654 S. Saltair Ave., West Los Angeles, Charnock Road School, Palms, **$450,000.** CD 4/8/55.

Calif., **Manteca**—SCHOOL—Manteca Elementary School Dist., c/o Supt., 750 E. Yosemite Ave., voted $19,000 bonds Feb. 5, Sequoia Elementary School addns. **$369,000.** Mayo Johnson & DeWolf, 307 Exchange Bldg., Stockton, archts. CD 12/3.

Calif., **Monterey**—COLLEGE—Monterey Union High School Dist., c/o Supt., Monterey, plans by Wallace Holm, 321 Webster St., Monterey Peninsula College addn. **$600,000.**

▲ Calif., **Oakland**—SCHOOLS—Oakland Unified School Dist., c/o Supt., 1025-2nd Ave., plans by Donald S. Macky, 1444 Webster St., rein.-con. Manzanita Elementary School, **$450,000;** plans by John B. Anthony, 1610 Harrison St., frame, stucco 10 classroom Brookfield Elementary School addn., $350,000; CD 6/8.

▲ Calif., **Placerville**—SCHOOL—El Dorado Co. High School Dist., c/o Supt., Placerville, plans by Gordon Stafford, 1024½ J St., Sacramento, constr. El Dorado Junior High School addn. **$1,200,000.** CD 2/8.

▲ Calif., **Richmond**—SCHOOL—Richmond Elementary & High School Dist., c/o Supt., 1108 Bissell Ave., plans by John Carl Warnecke, consult. engr.-archt., 507 Howard St., San Francisco, Loring Junior High School, Loring and Rosalind Sts. **$1,400,000.** CD 3/26/52.

▲ Calif., **San Rafael**—SCHOOLS—San Rafael Unified School Dist., c/o Supt., San Rafael, bond election May 17, school at Santa Venetia, and addns to Coleman, Hartzell, San Pedro, West End, Santa Venitia, Davidson, and Sun Valley School, **$1,300,000.**

Colo., **Colorado Springs**—OLD PEOPLES HOME—Owner, c/o C. D. King & W. A. Miller, archts.-engrs., Colorado Bldg., 2 story 37,000 sq. ft. central building with three 1 story wings, will provide 32 rooms, 12 apartments, dining room, kitchen, chapel, storage, Old Peoples Home, **$400,000.**

▲ **Colo., ... wood**—SCHOOL—**Arapahoe Co.**, School Dist. ... 1, Englewood, plans by Perkins & Will, 309 W. Jackson Blvd., Chicago, Ill., high school addn., **$1,500,000.** Wheeler & Lewis, 2215 W. 32nd Ave., Denver, consult. engrs. CD 1/17.

▲ **Colo., Lakewood**—School Dist. R-1, 1580 Yarrow St., plans by Wheeler & Lewis, 2215 W. 32nd, Denver, constr. high school, W. 24th Ave. and Pierce St. **$1,500,000.** Wheeler & Lewis, Denver, consult. engrs. CD 11/14/55.

Conn., Greenwich—SCHOOL—Town plans by O'Hara, Hedlander, Halasz & Edson, 45 E. Putnam Ave., Glenville Elem. School addn. and modernization, $700,000. Frederick C. Wood, First Nat. Bank Bldg., consult. engr. CD 1/16.

▲ **Conn., Newtown**—HIGH SCHOOL—Town, plans by Fletcher-Thompson, Inc., consult. engr.-archt., 211 State St., Bridgeport, Junior High School, **$1,000,000.** CD 12/31.

Conn., North Branford—SCHOOLS—Town, constr. East Elementary School, **$350,000;** Junior High School addn., **$375,000.**

Conn., Wallingford—SCHOOL—Town, remodel Lyman Hall High School for Jr. High School, **$345,000.**

Fla., Miami—SCHOOL—Dade Co. Bd. Pub. Instruc., 275 NW 2 St., Admin. Bldg., plans by Connell, Pierce, Garland & Friedman, 315 NW 27 Ave., Cutler Ridge Elementary School, SW 192 St. and SW 97 Ave., **$400,000.** CD 11/3/55.

▲ **Idaho, Moscow**—STUDENT UNION—University of Idaho, Moscow, student union addn. **$1,500,000.**

Ill., Berkeley — SCHOOL — School Dist. 87, Berkeley, plans by Arthur F. Kefer & Assoc., 53 W. Jackson Blvd., Chicago, Sunnyside Grade School addn., 5400 St. Charles Rd., **$450,000.**

Ill., LaGrange—LIBRARY—LaGrange Library Bd., 1007 S. Stone St., plans by Holabird, Root & Burgee, 180 N. Wabash Ave., Chicago, library, LaGrange Rd. $375,000.

Ill., Naperville—SCHOOL—School Dist., 78, Aurora Rd., plans by Kruegle, Wilkins, Healy & Moore, 43 E. Clinton St., Joliet, grade school, S. E. side near Katz Subdivision, **$500,000.**

▲ **Ind., Bloomington**—GEOLOGY—Bd. Trustees, Indiana University, Bloomington, plans by Eggers & Higgins, 100 E. 42 St., New York 17, N. Y. geology bldg. $1,500,000. CD 9/26.

Ind., Bloomington—MUSIC—Bd. Trustees, Indiana University, Bloomington, plans by Eggers & Higgins, superv. archts., 100 E. 42 St., New York 17, N. Y., and Daggett, Naegele & Daggett, assoc. archts., 565 W. Westfield Blvd., Indianapolis, 5 story circular addn. to music building. CD 7/23.

▲ **Ind., Bloomington**—TOWER CENTER DORMITORIES—Bd. Trustees, Indiana University, Bloomington, plans by Eggers & Higgins, superv. archts., 100 E. 42 St., New York 17, N. Y., and Edward D. James, assoc. archt., 122 E. Mission St., Indianapolis, 600-men and 400-women, Tower Center Dormitories, on Fee Lane. **$5,000,000.** Pierce, Gruber & Beam, Inc., 518 N. Delaware St., Indianapolis, structural engrs. Ammerman, Davis & Stout, K of P Bldg., Indianapolis, mech. engrs. CD 5/21.

▲ **Ind., Milan**—SCHOOL—Milan School Bldg. Corp., Willard W. Green, supt., Milan, high school. **$1,750,000.**

▲ **Iowa, Clinton**—SCHOOLS—Bd. Educ., c/o Ed. Johnson, supt. Schools, Clinton, plans by McCann-Prout & Assocs., Clinton, addns. to Clinton High School, incl. shops, domestic economy and music section, boys' gymnasium. **$1,300,000.** CD 10/11.

▲ **Ky., Madisonville**—HOSPITAL—Hopkins County Hospital, Madisonville, plans by Thos. J. Nolan & Sons, Kentucky Home Life Bldg., Louisville, 2 story, bsmnt., hospital addn. **$1,000,000.**

Md., Bel Air—SCHOOL—Harford Co. Bd. Educ. plans by Fisher, Nes, Campbell & Assocs., 1020 St. Paul St., Baltimore, Zone 2, 1 story, brick, concrete, steel Meadowvale School, Havre de Grace. **$850,000.** Van R. P. Saxe, 1701 St. Paul St., Baltimore, Zone 2, struct. engr. Whitman, Requardt & Assocs., 1304 St., Paul St., Baltimore, Zone 2, mech. engrs.

▲† **Md., Bethesda**—OFFICE—General Services Admin., Pub. Bldgs. Service, General Services Bldg., 19 and F Sts. N. W., Wash. 25, D. C., plans by Keyes & Lethbridge, 3 Dupont Circle, Wash., D. C., and Richard Collins & Assoc., 7705 Georgia Ave. N. W., Wash., D. C., office for Clinical Center of National Institutes of Health. **$5,300,000.**

Mass., Framingham — SCHOOLS — Town, School Bldg. Comm., c/o Supt. Schools, Union Ave., elementary school, Juniper Hill, **$350,000;** secondary high school, Winch Park, **$350,000.** Constr. in 1958.

Mass., South Deerfield—SCHOOL—Frontier Regional Schools, Daniel W. Alrino, supt., 311 Main St., plans by James A. Britton, 315 Federal St., Greenfield, Frontier Regional Junior Senior High School, **$350,000.**

▲ **Mich., Oak Park**—SCHOOL—City, Louise Shaw, city clk., 13600 Oak Park Blvd., bond election Apr. 15, elementary school, **$1,000,000** O'Deal, Hewlett & Luckenbach, 950 N. Hunter Blvd., Birmingham, archts. CD 9/4.

▲ **Mich., Pontiac**—SCHOOL—Waterford Twp., School Dist., 3101 W. Walton Blvd., plans by George D. Mason & Co., 409 Griswold St., Detroit, Zone 26, John D. Pierce Junior High School, Hatchery St. near Crescent Lake Rd. **$2,000,000.** Bids in May. CD 4/17/56, under Mich., Waterford.

▲ **Mich., Warren**—SCHOOL—Warren Charter Twp., Van-Dyke School District, 22720 VanDyke St., Warren, Senior High School addn., swimming pool, elementary school, **$1,750,000.**

▲ **Minn., Eveleth**—HOSPITAL—City, E. I. Taipale, clk., J. Primozich, chn. Hospital Bd., Eveleth, plans by S. C. Smiley & Assocs., 1750 Hennepin Ave., Minneapolis, hospital, **$1,000,000.** Bids in March. CD 9/19.

▲ **Minn., Faribault**—SCHOOL—Bd. Educ., C. E. Sommer, clk., plans by Magney, Tusler & Setter, 303 Roanoke Bldg., Minneapolis, Senior High School, and elementary school. **$2,000,000.** CD 3/20.

Minn., Forest Lake—SCHOOL—Bd. Educ., H. M. Handrum, clk., $525,000 bond election May 21, elementary school addn., imprvs. **$400,000.** Swanson & Wegleitner, 500 Sexton Bldg., Minneapolis, archts. CD 12/13.

Minn., Golden Valley (P. O. Minneapolis)—VILLAGE HALL—Village, R. W. Owens, clk. and admin., at election May 6 village will vote on authorizing **$450,000** bond issue for village hall, 7830 Sixth Ave. North to house municipal offices, fire dpt., police station and county branch library. Haarstick, Lundgren & Assocs., N. 212 First National Bank Bldg., St. Paul, archts.

Minn., Hayfield—SCHOOL—Bd. Educ., defeated **$985,000** bonds Mar. 19, school addn., alterations, W. W. Kane, Austin, archt. CD 3/12.

▲ **Miss., Greenwood**—SCHOOL—City Council, voted **$1,275,000** bonds Mar. 7, schools. CD 2/14.

Neb., Bertrand—SCHOOL—Bd. Educ., Bertrand, voted $450,000 bonds Mar. 20, school. CD 2/1.

▲ **New York**—HOSPITAL—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, mental hospital, on 232 acre tract bounded by Xenie St., Seaview Ave. and Mason Ave. and Lower New York Bay, **$15,000,000.**

▲ **N. Y., Albany**—LIBRARY, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
library, $1,750,000;
development of playfields, $334,000;
health and physical education bldg., $3,025,000;
education and school of Practice bldg., $3,900,000;
conversion of Milne School to College classroom-laboratory bldg., $350,000;
science bldg., $1,500,000;
residence halls, $3,200,000;
dining hall, $385,000 for Teachers College. To go ahead in 1957-1962.

▲ **N. Y., Alfred**—LABORATORY, etc.—Bureau of Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, research laboratory and library, $1,000,000. for College of Ceramics, Alfred University. To go ahead in 1957-1962.

▲ **N. Y., Alfred**—SCIENCE and LIBRARY, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
science and library, $1,500,000;
garage and maintenance shop, $75,000;
administration, classroom and auditorium, $1,700,000;
horticulture laboratory and gymnasium, $350,000;
site preparation, Saunders Farm new campus development, $175,000;
health and physical education, $1,500,000
student union with dining hall, heating plant, $650,000;
residence halls, $3,000,000, for Agricultural and Technical Institute, Alfred University. To go ahead in 1057-1962. CD 11/22/44.

▲ **N. Y., Brockport**—RESIDENCE HALLS, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
residence halls, $3,000,000;
development of playfields, $125,000;
library, $1,400,000;
education and school of Practice bldg., $3,300,000;
health and physical education bldg. and heating plant, $3,250,000;
field house, $1,000,000;
garage and maintenance shop, $75,000;
dining hall, $470,000 for Teachers College. To go ahead in 1957-1962.

▲ **N. Y., Brooklyn**—SCHOOL—Bd. Educ., 42-15 Crescent St., Long Island City, P. S. 298, Glenmore and Stone Aves. and Watkins St. $1,000,000. This project replaces E-670, P. S. 84. To go ahead in 1959. CD 12/13/54.

▲ **N. Y., Brooklyn** — SCHOOL — Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, school for mentally retarded adolescents on 270 acre tract bounded by Fairfield Ave., Fountain Ave., Schenck Ave. and Shore Parkway, $3,000,000.

▲ **N. Y., Buffalo**—STUDENT CENTER, ETC.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
conversion of present gymnasium into day student center, $500,000;
development of playfields, $200,000;
education and school of practice bldg., $3,400,000;
garage and maintenance shop, $75,000;
residence halls, $4,000,000;
dining hall, $500,000, for Teachers College. To go ahead in 1957-1962.

▲ **N. Y., Canton**—INDUSTRIAL-TECHNICAL, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
industrial-technical bldg. and heating plant, $2,000,000
residence hall, $1,000,000, for Agricultural and Technical Institute. To go ahead in 1957-1962. CD 6/29/45.

▲ **N. Y., Cobleskill**—AUDITORIUM, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany.
auditorium, gymnasium, dining hall, $1,500,000;
classroom and laboratory, $1,250,000;
farm machinery bldg., $90,000;
residence halls, $500,000, for Agricultural and Technical Institute. To go ahead in 1957-1962.

N. Y., Cortland—LIBRARY, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
library, $1,370,000;
development of playfields, $225,000;
steam tunnel from main bldg. to student union, $75,000;
education and school of practice bldg., $4,200,000;
field house and stands, $1,075,000;
science bldg., $1,500,000;
residence halls, $4,500,000;
dining hall, $500,000 for Teachers College. To go ahead in 1957-62.

▲ **N. Y., Delhi**—AUDITORIUM, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
auditorium, gymnasium, dining hall, $1,500,000;
residence hall, $500,000, for Agricultural and Technical Institute. To go ahead in 1957-1962. CD 7/30/43.

▲ **N. Y., East Meadow**—NURSING HOME—County Executive Nassau Co., Old County Court House, Mineola, plans by Jagow & Heidelberger, 658 Fulton Ave., Hempstead, county nursing home on Jerusalem Ave., $2,000,000.

▲ **N. Y., Endicott**—ADMINISTRATION, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
admin. and classroom bldg., $2,500,000;
library, $2,300,000;
infirmary, $75,000;
science bldg., $2,650,000;
maintenance group, $415,000;
student union, $1,650,000;
health and physical education bldg., $2,600,000;
service connections and ground imprvs., $250,000;
residence halls, $3,750,000;
dining hall and heating plant, $575,000, for Harpur College. To go ahead in 1957-1962.

▲ **N. Y., Farmingdale**—CLASSROOMS, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
classroom, laboratory and library, $2,250,000;
gymnasium-auditorium, $3,000,000;
dining hall, $385,000;
residence halls, $2,500,000, for Agricultural and Technical Institute. To go ahead in 1957-1962. CD 3/2/55.

▲ **N. Y., Fredonia**—EDUCATION, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
education and school of practice bldg., $3,300,000;
development of playfields, $100,000;
health and physical education bldg., $2,350,000;
auditorium and dramatic arts bldg., $2,000,000;
garage and maintenance shop, $75,000;
music bldg. addn., $500,000;
residence halls, $2,000,000;
dining hall, $385,000 for Teachers College, To go ahead in 1957-1962. CD 12/15/55.

▲ **N. Y., Geneseo**—EDUCATION, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
education and school of practice bldg., $2,200,000;
development of playgrounds, $110,000;
sewage disposal plant and lines, $200,000
health and physical education bldg., $2,950,000;
garage and maintenance shop, $75,000;
residence halls, $3,000,000;
dining hall, $300,000, for Teachers College. To go ahead in 1957-1962.

▲ **N. Y., Geneva**—LABORATORY, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
food research laboratory, $2,400,000;
entomology and plant pathology laboratory, $1,800,000;
elevated tank and stand pipe, $55,000, at Geneva Experiment Station, Cornell University.

▲ **N. Y., Ithaca**—HOME ECONOMICS SCHOOL, WING, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
wing on main bldg. home economics school, $415,000;
poultry virus disease laboratory at Veterinary Medicine School, $350,000;
remodel Moore laboratory and new library classroom at Industrial and Labor Relations School, $3,500,000;
biochemistry and nutrition laboratory addn. at School of Nutrition and Biochemistry, $700,000. Cornell University. To go ahead in 1957-1962.

▲ **N. Y., Ithaca**—ANIMAL HUSBANDRY—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
service, maintenance and garage, $550,000;
animal husbandry bldg., $2,900,000;
greenhouses, $3,600,000;
agronomy bldg., $4,000,000;
poultry research bldg., $900,000;
entomology and administration bldg., $4,000,000; for School of Agriculture, Cornell University. To go ahead in 1957-1962.

▲ **N. Y., Morrisville**—INDUSTRIAL-TECHNICAL, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
industrial-technical bldg., $2,300,000;
classroom, laboratory and cafeteria bldg., $1,485,000;
residence halls, $500,000, for Agricultural and Technical Institute. To go ahead in 1957-1962. CD 11/30/44.

▲ **N. Y., New York**—LABORATORY, ETC.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
science and engineering laboratory and classroom bldg., $1,200,000;
dormitory, $3,000,000;
gymnasium and auditorium, $1,200,000, for Maritime College, Fort Schuyler. To go ahead in 1957-1962.

▲ **N. Y., New Paltz**—FINE ARTS, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
fine arts classroom and auditorium bldg., $3,350,000;
development of playfields, $100,000;
health and physical education bldg. and heating plant, $2,725,000;
remodeling school of practice, $300,000;
garage and maintenance shop, $75,000;
altering main bldg., $220,000;
infirmary, $125,000;
science bldg., $1,500,000;
residence halls, $4,500,000;
dining hall, incl. heating plant, $575,000 for Teachers College. To go ahead in 1957-1962. CD 7/11/45.

▲ **N. Y., Oneonta**—LIBRARY, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
library, $1,200,000;
development of playfields, $150,000;
health and physical education bldg., $2,400,000;
auditorium and dramatic arts bldg., $2,000,000;
college administration and classroom bldg. to replace old main bldg., $2,200,000;
addn. to school of practice, $250,000;
garage and maintenance shop, $75,000.
residence halls, $3,000,000;
dining hall, $385,000, for Teachers College To go ahead in 1957-1862. CD 11/22/44.

▲ **N. Y., Oswego**—DINING HALL, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
dining hall, $500,000;
development of playfields, $200,000;
education and school of practice bldg., $4,200,000;
library, $1,650,000;
science bldg., $1,750,000;
auditorium and dramatic arts bldg., $2,000,000;
garage and maintenance shop, $75,000;
field house, $1,000,000;
resident halls, $4,000,000, for Teachers College. To go ahead in 1957-1962.

▲ **N. Y., Plattsburgh**—LIBRARY, etc.—Bureau Contracts & Accounts The Gov. Alfred E. Smith State Office Bldg., Albany,
library, $1,500,000;
health and physical education bldg., $2,600,000;
garage and maintenance shop, $75,000;
conversion of gymnasium and practice school areas in main bldg. into classrooms and offices, $275,000;
education and school of practice bldg., $2,800,000;
resident halls, $3,000,000;
dining hall and heating plant, $470,000 for Teachers College. To go ahead in 1957-1962.

▲ **N. Y., Potsdam**—RESIDENCE HALLS, etc.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
residence halls, $3,000,000;
garage and maintenance shop, $75,000;
dining hall, $385,000, for Teachers College. To go ahead in 1957-1962. CD 7/6/45.

▲ **N. Y., Stony Brook**—COLLEGE—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, conversion of Coe Estate and development for new college, Setauket area, Long Island, $27,000,000. To go ahead in 1957-1962.

▲ **N. Y., Syracuse**—COLLEGE IMPRVS.—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
garage and maintenance shop, $75,000;
grounds imprvs., $215,000;
summer camp in Pack Forest, $210,000;
pulp and paper laboratory and mill, $1,500,000, for College of Forestry, Syracuse University. To go ahead 1957-1962.

▲ **N. Y., West Hempstead** — SCHOOL — Union Free School Dist. No. 27, town of Hempstead, Junior Senior High School, 400 Nassau Blvd. referendum vote on Apr. 6, Junior High School adjoining existing Junior-Senior High School on Nassau Blvd. $2,980,000. CD 10/11/54.

▲ **N. Y., Williamsville**—SCHOOL—Williamsville Central School Dist. 3, 5950 Main St., Zone 21, defeated bonds Mar. 2, Junior High School, $2,800,000. Duane Lyman & Assoc., 505 Delaware Ave., Buffalo, archts. CD 2/4.

O., Akron—SANITARIUM REMODELING—Comrs. Summit Co. Court House, plans by Wagner & Luxmore, Permanent Bldg. remodeling Edwin Shaw Tuberculosis Sanitarium, incl. mens wing, L-shaped addn. and basement wing. $500,000.

O., Greenwich—SCHOOL—South Central School Dist., Greenwich, bond election July 2, centralized high school $750,000.

▲ **O., Toledo**—SCHOOLS—Bd. Educ., Washington Twp. School Dist., c/o Ora K. Benton, clk., 5700 Whitmer Dr., $5,000,000 bond election Nov. 5, school expansion, incl. high school, $3,500,000; Thyerview grade school, $500,000; grade school at Shoreland, $350,000. McLaughlin & Keil, 500 Dominion Bldg., Lima, archts. CD 12/15/54.

▲ **O., Whitehall**—SCHOOLS—Whitehall City School Dist., Whitehall, voted bonds Mar. 19, schools. $1,200,000. CD 3/18.

O., Wickliffe—GYMNASIUM—Bd. Educ., 2221 Rockefeller Ave., $965,000 bond election June 25, high school gymnasium. CD 11/11/55.

O., Xenia—HOSPITAL—Bd. Trustees, Greene Memorial Hospital, c/o Comrs. Greene Co., Court House, bond election Nov. 7, 100-bed hospital addn. $900,000.

Okla., Bartlesville—COURT HOUSE—Washington Co., Bartlesville, defeated bonds Mar. 19, county court house. $855,000. CD 2/28.

Okla., Duncan—SCHOOL—Bd. Educ., Duncan, Senior High School. $500,000.

▲ **Pa., Gulph Mills**—SCHOOLS—Upper Merion Twp. School Dist., plans by Joseph Wigmore, 117 S. 17 St., Phila., 2 elementary schools, $700,000; high school, $750,000.

Pa., Kulpsville—SCHOOL—Towamencin Twp. School Dist., Kulpsville, elementary school, school addn., $344,000.

Pa., Lansdale—SCHOOL—North Penn Joint School Auth., elementary school. $344,000.

R. I., East Providence—SCHOOLS—Town School Comm., Town Hall, elementary school, Hull St. $350,000, Contr. 1957-58; plans by Milton R. Kenyon, 124 Taunton Ave., elementary school, Grove St., $350,000, Constr. 1957.

▲ **R. I., Warwick** — HOSPITAL EXPANSION — Kent County Memorial Hospital, Lee F. Nichols, hospital administrator, 455 Tollgate Rd., plans by Howe, Prout & Ekman, 17 Custom House, Providance, hospital expansion, Stage II, $2,000,000. A. Ehrenzella Inc., 329 Washington St., Dorchester, Mass., mech. engr.

S. C., Columbia—STATE ARCHIVES—State, Dpt. Archives, State Capitol, Columbia, State Archives Bldg. $400,000. CD 8/19/48.

Tenn., Memphis—FIRE TRAINING, etc.—Memphis City Comn., City Hall, fire and police training and communications bldg. $600,000.

Tex., Brownwood—WAREHOUSE, etc.—State Hy. Dpt., Brownwood, or at Austin, plans by Tucker & Lindberg, 161½ Cedar St., Abilene, dist. warehouse, shops and equipment storage bldg. $380,000.

Tex., Hobbs—SCHOOLS—Hobbs Independent School Dist., Hobbs, elementary school, $350,000; Southern Heights Elementary School addn. $350,000.

▲ **Tex., Houston**—ARMORY—U. S. Naval Reserve, c/o Capt. H. J. Verhoye, 4415 Cullen St., armory, on Old Spanish Trail. $1,250,000.

▲ **Tex., Longview**—HOSPITAL—Gregg Co., c/o Jno. L. Allen, commr., Courthouse, plans by Wilson, Morris & Crain, 3330 Graustark, and Rather & Howze, 2814 Virginia St., Houston, Memorial Hospital addn. and expansion, $1,000,000. Walter P. Moore, 2 Pinedale, and H. E. Bovay Jr., 5009 Caroline St., Houston, consutt. engrs. CD 8/7.

▲ **Tex., McKinney**—SCHOOLS—McKinney Independent School Dist., McKinney, voted bonds Mar. 9, elementary school, $450,000; Senior High School Unit, $880,000; Junior High School Unit, $750,000.

Tex., San Antonio—SCHOOLS—Edgewood Independent School Dist., 525 Cupples Rd., plans by Peter Callins, 134 Bethany St., Roosevelt School Addn., (Proj. Tex. 58-C-29-a8) $350,000; plans by Frank M. Valdez, 1716 San Pedro St., Stafford Elementary School addn., $350,000; Edgewood Junior High School Unit, $350,000. CD 5/16/55.

▲ **Tex., San Antonio**—HEADQUARTERS—State Hy. Dpt., Austin, plans by Bartlett Cocke, 3501 Broadway, Dist. No. 15 headquarters bldgs.: engineering bldg., laboratory, foreman-permit bldg., maintenance warehouse, equipment storage, fueling station, $650,000; general shop, $200,000; general warehousing, $150,000. F. M. Davis, 2300 Roosevelt St., owners staff engr. CD 1/10.

Utah, Cedar City—SCHOOL—Iron County School Dist., Inathus Wright, supt., Cedar City, plans by L. Robert Gardener, 173 S. 2 St. West, South Elementary School. Over $350,000.

Utah, Salt Lake City—SCHOOLS—Salt Lake City Bd. Educ., 440 E. 1st St., plans by M. E. Harris, Jr., 702 Newhouse Bldg., elementary school, 1269 North Colorado St., (1340 West) $480,000. CD 5/2.

Wash., Puyallup—PHYSICAL EDUCATION—School Bd., Puyallup, $120,000 bond election May 21, physical education bldg. $480,000. CD 11/14.

Wis., Fountain City—SCHOOL—School Dist., Fountain City, plans by J. V. Klund, 929 Applegate Rd., Madison, high school. $450,000.

Wis., Mishicot—HIGH SCHOOL—Bd. Educ., Mishicot, plans by F. Raeuber & Assocs., 1024 S. 9 St., Manitowoc, 1 story, 50,000 sq. ft. high school. $575,000.

▲ **Wyo., Sheridan**—COLLEGE—Northern Wyoming Community College, 6 and Saberton Sts., college addn. $1,000,000. bond election soon.

▲ **Que., Sherbrooke**—SCHOOLS—La Commission Scolaire de Sherbrooke, 121 King St. W., plans by Albert Poulin, 115 Prospect St. and Jean Paul Audet, 1100 Prospect St., Secondary Boys' School, Bowen St. $600,000; school for English-speaking pupils $500,000.

COMMERCIAL BUILDINGS

Ala., Birmingham—HOMES—Montgomery Real Estate & Insurance Co., 528 N. 20 St., 50 homes in Goldwire St. Area of West End of city, $450,000.

▲ **Ala., Vestavia Hills**—HOMES—B. G. Brasher, 5719 8 Courth S., Birmingham, 67 homes. $1,250,000.

Ark., Little Rock—HEADQUARTERS EXTEN.—Capitol Ave. Bldg. Co., c/o Erhart, Eichenbaum, Rauch & Blass, archts., 201 Chester St., 46,000 sq. ft. headquarters bldg. exten. $600,000. Southwestern Bell Telephone Co., lessee.

Calif., Atherton — STUDENT DORMITORY, etc. — Menlo School & College, Ale Jandra Ave., student dormitory and union bldg. at Menlo College Campus. $500,000.

Calif., Belmont—COLLEGE—College of Notre Dame, Ralston Ave., plans by Vincent G. Raney, 233 Post St., San Francisco, College of Notre Dame addn. and remodeling. $500,000.

▲ **Calif., Fresno**—SHOPPING CENTER—C. A. Bergfeld, 728 N. Fulton St., shopping center, Unit No. 2, 12 units, Manchester Center at Blackstone and Shields Ave. $1,500,000.

▲ **Calif., Modesto** — SHOPPING CENTER — Codding Enterprises, 4000 Montgomery Dr., Santa Rosa, 44 unit shopping center addns., McHenry Village Shopping Center, $1,500,000.

Calif., Monterey — CHURCH, etc. — First Presbyterian Church of Monterey, c/o Wallace Holm, archt., 320 Webster St., Monterey, Calif., church, educational bldg. and sanctuary, $375,000.

▲ **Calif., San Francisco**—HOSPITAL—Franklin Hospital Bd. Directors, 14th and Noe Sts., plans by Stone, Mulloy, Marraccini & Patterson, 619 California St., Franklin Hospital addn. $8,000,000. CD 1/17/50.

▲ **Calif., San Francisco**—OFFICE—Marvin Kratter & Assocs., 521-5th Ave., New York, N. Y., plans by Pereira & Luckman, 9220 Sunset Blvd., Los Angeles, 42 story office bldg., incl. 400-car garage underground, air conditioning, 10th St., between Stevenson and Jessie Sts. $15,000,000.

Conn., Berlin—JUNIOR HIGH SCHOOL—St. Paul's R. C. Church, 485 Alling St., Kensington, constr. Parochial Junior High School. $500,000.

Conn., Branford—OFFICE—Southern New England Telephone Co., 55 Trumbull St., Hartford, office bldg. addn. $350,000.

Conn., Bristol—OFFICE—Southern New England Telephone Co., 55 Trumbull St., Hartford, office bldg. addn. $349,000.

▲ **Conn., Danbury**—OFFICE—Southern New England Telephone Co., 55 Trumbull St., Hartford, office bldg. $1,666,000.

Conn., Derby—OFFICE—Southern New England Telephone Co., 55 Trumbull St., Hartford, office bldg. addn. $345,000.

Conn., Greenwich—OFFICE—Harry Jurman, 15 Maher Ave., 4 story office, Post Rd. $480,000.

Conn., Manchester—OFFICE—Southern New England Telephone Co., 55 Trumbull St., Hartford, office bldg. addn. $550,000.

Conn., Milford—HOUSES—Sheffield Realty Co., Orange Ave., 33 houses, Orange Ave. $345,000.

▲ **Conn., Monroe**—HOUSES—Steiner, Inc., Glenridge Rd., Fairfield, 105 houses, "Purdy Hill Estate," Purdy Hill Rd. $1,050,000.

Conn., North Branford — HOUSES — Burr-Hill Terrace, North Branford, 45 houses. $450,000.

Conn., North Branford—HOUSES—Deerfield Hills, North Branford, 58 houses. $580,000.

Conn., North Branford—HOUSES—Harrison Road Homes, Harrison Rd., 36 houses, Harrison Rd. $360,000.

Conn., North Branford — HOUSES — Hillview Estates, North Branford, 40 houses. $400,000.

Conn., North Branford—HOUSES—Holly Heights, North Branford, 55 houses. $550,000.

Conn., North Branford—HOUSES—Woodleigh Homes, North Branford, 57 houses. $570,000.

Conn., North Branford—HOUSES—Woodvale Homes, North Branford, 84 houses. $840,000.

Conn., Stamford—CHURCH—Greek Orthodox Church of Archangels, 434 Elm St., plans by W. Stuart Thompson, 250 Park Ave., New York, N. Y., church. $345,000. CD 1/2.

Conn., Stepney—HOUSES—Connecticut Properties, Inc., Main St., Stepney Depot, 68 houses, 3 roads, Route 25. $710,000.

Conn., Torrington—OFFICE—Southern New England Telephone Co., 55 Trumbull St., Hartford, office addn. $345,000.

Conn., West Haven—APARTMENT—George Zeidenberg, 387 Ellsworth Ave., New Haven, apartment, West Spring St. $500,000.

Conn., Wallingford — HOUSES — Beach Constr. Co., Hillcrest Gardens, Wallingford, 50 houses, Hillcrest Gardens, $600,000.

▲ **Conn., Wallingford**—SHOPPING CENTER—Food Fair Properties, Inc., 99 Park Ave., New York, N. Y., plans by Lathrop Douglass, 518 Fifth Ave., New York, N. Y., 334,000 sq. ft., 17-store shopping center, "Wallingford Shopping Plaza," South Broad St. $3,340,000.

▲ **D. C., Wash.**—RESIDENT DORMITORY, etc.—Georgetown University, 37 and O Sts. N. W., plans by Faulkner, Kingsbury & Stenhouse, Ring Bldg., resident dormitory for hospital, $1,000,000; diagnostic clinic, laboratory addn., $2,000,000.

▲ **Del., Wilmington**—OFFICE—Wilmington Trust Co., 10 and Market Sts., plans by Whiteside, Moeckel & Carbonell, 909 Tatnall St., 10-story office, Tenth St., between Shipley and Orange Sts. $1,500,000.

▲ **Fla., Coral Gables**—DORMITORY—University of Miami, Coral Gables, women's dormitory. $2,695,000.

▲ **Fla., St. Petersburg**—APARTMENT, etc.—John Ruff, 100 W. 22 St., Baltimore, Md., plans by Knox & Justice, 265-108 Ave., Treasure Island, 10 story, 200 x 48 ft. rein.-con., steel apartment with penthouse and swimming pool. $1,500,000.

Ga., Dalton—CHURCH—Dalton First Baptist Church, Dalton, church. $600,000-$700,000.

▲ **Ill., Lake Forest**—HOSPITAL—Lake Forest Hospital, 650 W. Deerpath St., plans by Stanley Anderson & Assocs., 270 E. Deerpath St., 3 wing hospital addn. $1,250,000.

Ill., St. Charles—BOWLING ALLEY—James L. Kacherer, 122 S. 2 St., plans by Richard J. Stromberg, 117 S. Grove St., Elgin, bowling alley cocktail lounge and

restaurant, North Ave. and Dunham Rd., east of here. $400,000.

Ind., East Chicago—CHURCH—Our Lady of Guadalupe Parish, 3522 Deodar St., plans by J. Ellsworth Potter, 2036 E. 22 St., Cleveland 15, O. 1 story, bsmnt., rein.-con. masonry, structural steel church. $350,000.

Ind., Kokomo—HOSPITAL—Bd. Directors, St. Joseph Memorial Hospital, 1907 W. Sycamore, 120x60 ft. hospital wing, State Rd. 22, and adjoining bldg. imprvs. $750,000. Work to start in fall.

Me., Lewiston — YOUTH CENTER — Central Maine Youth Center, Inc., Bartlett St., plans by Alonzo J. Harriman, Inc., 292 Court St., Auburn, rebuild Youth Center, Birch St. extension. $800,000.

Mass., Needham—CONVENT—St. Joseph's R.C. Parish, c/o Chancery Office, 1 Lake St., Brighton, plans by Whelan & Westman, 7 Water St., Boston, convent. $350,000.

Mass., Orleans—RESIDENTIAL DEVELOPMENT—Delbert Johnson, South Orleans, 51 houses, Winslow Estate, 15 acres. $360,000.

▲ **Mass., Plymouth**—HOMES, etc.—Plymouth Plantations, 59 Court St., plans by Charles R. Strickland, 73 Newbury St., Boston, Plymouth. Plantation, incl. pilgrim homes, trading post, museum, etc., on Mass. Bay approx. 2 mi. south of here. $1,000,000. Bids in April.

▲ **Mass., Stoughton** — HOSPITAL — Goddard Memorial Hospital, 129 W. Elm St., Brockton, plans by Aisner & Atwood, 10 Newbury St., Boston, hospital, near Summer St. $1,000,000. Bids in April.

Mich., Detroit—Y.M.C.A. BLDG.—Young Men's Christian Assn., 703 Fran Palms Bldg., plans by Giffels & Vallet, Inc., 1000 Marquette Bldg., 2 story Northwest Branch Y.M.C.A. $400,000. Bids in August.

▲ **Mich., Port Huron**—STORE—Sears Roebuck & Co., Port Huron, retail store, St. Clair River site. $1,000,000.

▲ **Mich., Southfield**—ACTIVITIES CENTER—Lawrence Institute of Technology, Dr. E. George Lawrence, pres., 21000 W. 10 Mile Rd., student activities center, incl. classrooms, field house, auditorium, library, offices and lounges, Northwestern and Ten Mile Rd., $1,300,000.

▲ **Minn., Anoka**—SHOPPING CENTER—J. P. Melberg & Assoc., 5132 Lyndale Ave. North, Minneapolis, plans by Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, shopping center, 30 to 35 units Hy. 10 and 65, $2,000,000. Constr. in 1957.

▲ **Minn., Minneapolis**—HOSPITAL—Deaconess Hospital, 1412 E. 24 St., plans by Magney, Tusler & Setter, 303 Roanoke Bldg., remodel present bldg., constr. 3 story, bsmnt., ground floor hospital wing. $1,600,000. Bids in July-August.

▲ **Minn., Minneapolis** — SHOPPING CENTER — J. P. Melberg & Assoc., 5132 Lyndale Ave. North, plans by Thorshov & Cerny, 400 Metropolitan Bldg., shopping center, incl. 24 units at County Road B and Stinson Blvd. $1,500,000-$2,000,000.

Minn., Rochester—STORE—J. C. Penney Co., T. W. Pawiuk, constr. dpt., 2025 Nicollet Ave., Minneapolis, 3 story store. $350,000.

N. J., East Brunswick—STORE—Two Guys from Harrison, 501 South Fifth St., Harrison, store opposite shopping center, on Rte. 18. $500,000.

▲ **N. J., Princeton**—ADMINISTRATION LIBRARY, etc. —Princeton University, Princeton, plans by Voorhees, Walker, Smith & Smith, 1016 Lexington Ave., New York, N. Y., 5 building expansion consisting of administration library, library addn., classrooms, shops, laboratories, etc. $7,500,000.

N. Y., Brooklyn—SCHOOL—Our Lady of Angels R.C. Church, 7320 Fourth Ave., Zone 9, plans by William J. Boegel, 12 E. 48 St., New York, Zone 17, 3 story school, 337 74 St. $750,000.

▲ **N. Y., New York**—APARTMENT—Nassau Management Co., Inc., 2 Park Ave., Zone 16, plans by Hippolyte Kamenka, 101 Park Ave., New York, Zone 17, 17 story apartment, 235-43 E. 57 St., between 2 and 3 Aves. $1,500,000.

N. Y., New York—APARTMENT—Jacob Perlow, 40 E. 50 St., Zone 22, plans by Sidney Goldhammer, 44 W. 56 St., Zone 19, 10 story apartment, 422-24 Ave. of Americas, and 69-75 W. 9 St. $585,000.

▲ **N. Y., New York**—APARTMENT—Third Avenue Development Corp., c/o H. Herbert & Clarence Lillien, 201 W. 72 St., Zone 23, 7 story apartment, 175 E. 82 St. $1,400,000.

▲ **N. Y., Rochester**—HOSPITAL—St. Mary's Hospital, Sister Martina, admin., 89 Genesee St., 6 story hospital addn., 5 story nurses home addn. $1,900,000. CD 6/16/47.

O., Alliance—Y. M. C. A. ADDN.—Young Men's Christian Assn., 205 S. Union St., plans by Richard N. Zuber, 255 E. State St., Y. M. C. A. bldg. addn. $395,000.

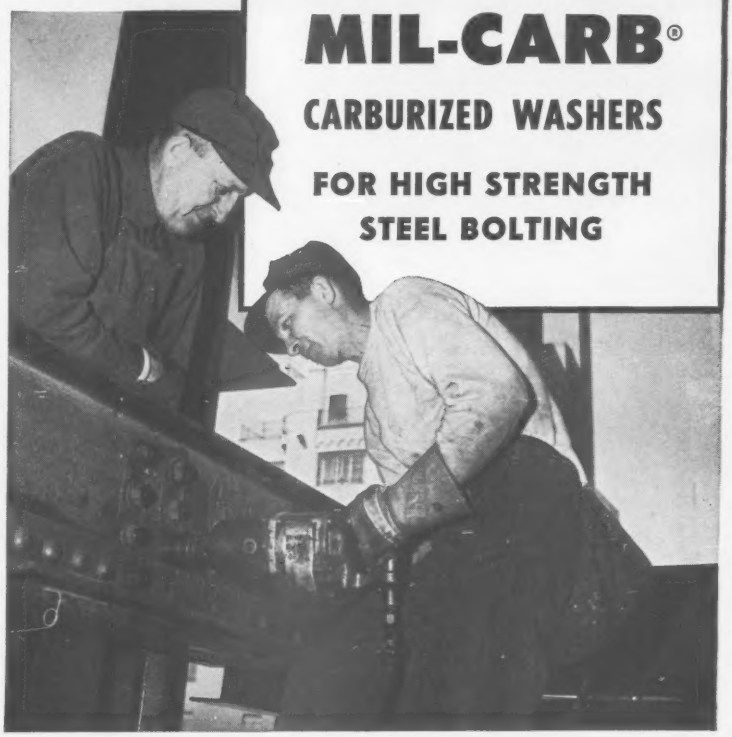
O., Boardman—OFFICE—Standard Slag & Stone Co., Wick Bldg., Youngstown, 2 story office bldg., Market St. near Ridgewood Dr. $500,000. Re-zoning to be secured before work starts.

O., Cincinnati—OFFICE—A. M. Kinney, Inc., 2905 Vernon Pl., 3-story, 40,000 sq. ft. office bldg., Vernon Pl. and University Ave. $750,000.

O., Columbus—MEDICAL CENTER—H. S. Wollett & Co., 465 Annadale Dr., plans by Harry T. Roderick, 12 N. Third St., 20,000 sq. ft. medical center, 3240 Olentangy River Rd. $400,000.

Okla., Oklahoma City—OFFICE—Educators Insurance Co., 1132 N. W. 51 St., Zone 18, office bldg., 51 and Clarsen Sts. $350,000.

• *Photo courtesy Russell, Burdsall & Ward Bolt and Nut Co.*



WHY MORE AND MORE CONTRACTORS SPECIFY

MIL-CARB®

CARBURIZED WASHERS

FOR HIGH STRENGTH STEEL BOLTING

Contractors know a nut and bolt assembly is only as strong as its washers. That's why in high strength structural steel bolting, quality-conscious consulting engineers and contractors demand washers that match the best nut-and-bolt assemblies in . . .

1. **High tensile strength**
2. **Holding power**
3. **Uniformity**

On all three counts, Mil-Carb Carburized Washers fill the bill best—developed *specifically* by the world's largest producer of washers to meet the needs of modern structural steel jointing.

Mil-Carb Washers are fabricated from *prime* carburizing quality special soundness steel to insure strength to equal or exceed the rigid specifications of ASTM designation A-325.

Maximum holding power is assured by a closely supervised carburizing process which retains inner ductility of the metal, yet provides an exceptionally hard "outer skin". It's this tough "outer skin" which permits torquing nuts to specification maximums without danger of "galling" or grinding of the washer . . . imperative for permanent, uniformly strong, tight joints!

In addition, Mil-Carb Washers are uniformly flat and smooth with dimensions conforming to current requirements for heavy plain washers (carburized) of the American Standards Association (ASA Designation: B27.2).

For permanently strong, tight joints that become integral parts of the steel structure . . . *as permanent as the steel itself* . . . specify Mil-Carb Carburized Washers. Available in six sizes, from ⅝" to 1⅛", packed in 200-lb. kegs.

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208 South La Salle St. • Chicago 4, Illinois

WROUGHT WASHER MANUFACTURING CO.
The World's Largest Producer of Washers
2224 S. BAY ST., MILWAUKEE 7, WIS.

▲ **Okla., Stillwater**—DIAL TELEPHONE EXCHANGE—South-Western Bell Co., 607 S. Main St., Oklahoma City, dial telephone exchange. $1,000,000.

Pa., Chester—HOSPITAL—Crozer Home & Hospital, 15 St. and Upland Ave., plans by Miller Cauffman Wilkinson & Pepper, 204 W. Rittenhouse Square, Phila., hospital addns. $344,000, Keast & Hood, 2031 Chestnut St., Phila., consult. engrs.

Pa., Chester—CHURCH—Second Presbyterian Church of Chester, 504 Harrison Ave., Ridley Park, plans by Howell Lewis Shay, Packard Bldg., Phila., church, Chester Twp. $350,000. CD 3/29/56.

▲ **Pa., Media**—SCHOOLS—Williamson Free School of Mechanical Trades, Media, school bldgs. $1,000,000.

Pa., Phila.—HOSPITAL—Misericordia Hospital, 54 St. and Cedar Ave., hospital wing. $344,000.

Pa., Phila.—CHURCH—St. Matthews R. C. Church, 3105 Cottman Ave., plans by Gleeson & Mulrooney, 1612 Market St., church. $500,000.

▲ **Pa., Pittsburgh** — OFFICE — Donovan Co., Oliver Bldg., Pittsburgh, plans by Franklin, Douden & Assoc., 522 Century Bldg., 1 2 and 3 story brick, block office, Greentree. $2,250,000.

▲ **S. C., Charleston**—HOSPITAL—Medical College of South Carolina, Dr. K. M. Lynch, pres., 1 Lucas St., 4 story teaching hospital addn. $3,000,000.

Tex., Bellaire — CHURCH — St. Martin's Evangelical Lutheran Church, 6704 Long Point Rd., Houston, church, 4½ acre tract N. of Bellaire Blvd., Sharpstown. $400,000.

Tex., Corpus Christi—OFFICE—Coastal States Gas Co. of Corpus Christi, c/o Oil Industries Bldg., 6 story, bsmnt., 75x150 ft., masonry office. $600,000.

▲ **Tex., Corpus Christi**—OFFICE—United Savings Assn., 623 Mesquite St., plans by Wade, Gibson & Martin, 1101 S. Brownlee St., 10-story office bldg. to be included in Unit A. $1,000,000.

▲ **Tex., Houston**—MOSQUE—Arabia Temple Shriners, 1322 Prairie Ave., mosque, incl. warehouse, parking facilities, drill field, etc., 10 acre tract on Brays Bayou. $1,000,000: Walter P. Moore, 2 Pinedale St., consult. engr.

Tex., Houston—SHOP—Howard P. Foley Co., P. O. Box 14065, plans by Hightower & Moreland, 6255 Terwilliger Dr., 70x155 ft. masonry, steel, shop. $100,000. Stubbs, Overbeck & Assocs., Inc., 2524 Tengley St., consult. engr.

Tex., Houston—DWELLINGS—James Mallette & J. B. Belin, c/o 805 N. Post Oak St., 27 dwellings, $352,-200; 30 dwellings, $368,500, in 2nd section of Songwood Subdivision.

▲ **Tex., Houston**—DWELLINGS—Peachey Constr. Co., 1220 Polk St. (Peachey Realty Co., 1220 Witte St., a subsidiary), 28 dwellings, $645,000; 42 dwellings, $825,000; 35 dwellings, $750,000; in a 3rd section of Spring Branch Woods.

Tex., San Antonio—HOSPITAL—San Antonio Osteopathic Hospital, c/o O. E. Wurzbach, c/o Hausman Rd., plans by Dukes & Williams, 728 W. Hildebrand St., osteopathic hospital, $350,000. Dukes & Williams, 728 W. Hildebrand St., Reynolds Morgan, c/o Insurance Bldg., and Halsey & Royer, 120 W. Grayson St., consult. engrs. CD 9/28.

Vt., Winooski—HOSPITAL—Fanny Allen Hospital, 101 College Parkway, plans by Julian Goodrich, 930 Shelburne St., Burlington, hospital addn., Fanny Allen Pavilion. $345,000. Contr. 1957.

Va., Bridgewater—DORMITORY—Bridgewater College, Bridgewater, plans by D. P. Davis, Harrisonburg, dormitory. $450,000.

Wash., Seattle—HOTEL—Doric Co., Dexter Horton Rd., Zone 4, New Washington Hotel addn. $500,000. Work to start next month.

Wis., Cudahy—SCHOOL, etc.—Holy Family Catholic Congregation, 3767 E. Underwood St., plans by Myles E. Beloncia, 239 W. Center St., Milwaukee, school, auditorium and gymnasium. $450,000.

▲ **Wis., Eau Claire**—SHOPPING CENTER—Development Facilities Corp., 410 Batavian Bldg., La Crosse, plans by Thorshov & Cerny, 400 Metropolitan Bldg. Minneapolis, Minn., shopping center. $1,000,000-$2,000,000. Constr. late this year.

▲ **Wis., La Crosse**—SHOPPING CENTER—Development Facilities Corp., 410 Batavian Bank Bldg., La Crosse, plans by Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, shopping center. $1,000,000-$2,000,000. Constr. late this year.

▲ **Wis., Racine**—SHOPPING CENTER—H. Shanedling Sons, Inc., 2025 Nicolet St., Minneapolis, Minn., plans by Ackerberg & Cooperman, 1216 Nicolet Ave., Minneapolis, Minn., 14-store, 78,544 sq. ft. Shorecrest Plaza Shopping Center, $1,500,000.

Wyo., Cody—ART DISPLAY—Buffalo Bill Memorial Assn. Cody, art and display bldg., near Buffalo Bill statue. $350,000. Construction this spring.

▲ **Que., Montreal**—HOUSING DEVELOPMENT—International Construction Inc., 1465 City Hall, 200-unit housing development, Laval des Rapids suburb. $2,-500,000.

▲ **Que., St. Laurent** — APARTMENT BLOCK — College Park Development, Inc., 590 Crevier St., plans by Charles Grenier, 3600 Barclay Ave., Montreal, six buildings, 35 suites each, 3 story, bsmnt., brick, stone trim apartment block, concrete fdn., Laurentian Blvd. $1,800,000.

Que., Sillery—OFFICE—Industrial Life Insurance Co., 1080 St. Louis Rd., Quebec City, plans by Maurice Bouchard, 376 King St., Quebec City, 2 story office bldg. annex, St. Louis Rd. $500,000. Dufresne & Mainguy, 915 St. Cyrille St., Quebec City, consult. engrs.

INDUSTRIAL BUILDINGS

▲ **Ala., Wilsonville** — STEAM POWER GENERATING PLANT—Southern Electric Generating Co. (Alabama Power Co., Ala. Power Bldg., Birmingham and Georgia Co., 75 Marietta St., Atlanta, Ga.) steam power generating plant, 2 mi. northeast of here. $100,000,000-$150,000,000.

Calif., Oakland—TERMINAL—Los Angeles-Seattle Motor Express, Inc., 677 Arthur Ave., San Francisco, plans by J. Y. Long, consult. engr. and archt., 132-9th St., 22,000 sq. ft. terminal, Ferry St. at 7th. $250,000.

▲ **Calif., San Diego**—ENGINEERING—Convair Div. General Dynamics Corp., 3165 Pacific Hy., plans by Paderewski, Mitchell & Dean, 521 B St., altering two engineering bldgs. $3,000,000. CD 5/4.

Conn., Bridgeport—PARKING GARAGE—Bridgeport Park & Shop, Inc., c/o Chamber of Commerce, 1243 Main St., plans by Fletcher-Thompson, Inc., consult. engr.-archt., 211 State St., 5 story parking garage, 40 Middle St. $600,000. CD 9/26.

▲ **Conn. New Britain**—PLANT—Stanley Works, 195 Lake St., steel strapping plant. $3,000,000.

Conn., New Haven—FACTORY—New Haven Fur Co., Inc., 103 Meadow St., 12,000 sq. ft. fur products factory. $120,000.

Conn., New Haven—WAREHOUSE—New Haven Plumbing Supply Co., 221 Water St., 78,000 sq. ft. warehouse. $780,000.

Conn., New Haven—FACTORY—Sanco Products, Inc., 3 Factory St., 15,000 sq. ft. mattress factory in New Boulevard Industrial Park. $150,000.

Ill., Chicago—FACTORY—American Spring & Wire Co., 816 N. Spaulding Ave., plans by Camburas & Theodore, 105 W. Madison St., factory addn. $150,000.

Ill., Chicago—PLANT—Wm. Davies Co., 4101 S. Union Ave., plans by Belaskas & Assoc., 723 W. Chicago Ave., East Chicago, Ind., 3 story, brick meat packing plant addn. $300,000.

Ill., Chicago—MANUFACTURING, etc.—Vaughan Mfg. Co., 3211 W. Carroll Ave., plans by Engineering Systems, Inc., 116 S. Michigan Ave., 2 story, brick manufacturing bldg. and warehouse addn. $100,000.

▲ **Ill., North Chicago**—RESEARCH—Abbott Laboratories, Sheridan Rd. and 14 St., plans by Naess & Murphy, 80 E. Jackson Blvd., Chicago, 6 story, brick, 120 000 sq. ft. research bldg. addn. $5,000,000.

Ill., Schiller Park—FACTORY—Wisconsin Tool & Die Co., 4027 N. Kedzie Ave., Chicago, 30,000 sq. ft. factory, River Rd. near Lawrence Ave. $200,000.

▲ **Ind., Richmond**—WAREHOUSE—Johns-Manville Corp., 22 E. 40 St., New York 16, N. Y., 220x256 ft. structural steel frame, asbestos siding warehouse. $2,000,000. Johnson & Johnson, 111 W. Washington St., Chicago 2, Ill. consult. engrs. Dailey Constr. Co., starting foundations, structural steel being fabricated.

▲ **Mass., Boston**—GARAGE—The Brattle Co., Frank Sawyer, pres., 10 Gainsboro St., plans by Albert J. Carpenter, 236 Huntington Ave., 200,000 sq. ft. brick garage, Scholly Square, Brattle St., Brattle Square. $1,600,000. This project replaced proposed city of Boston garage. CD 2/4/55, under unclassified.

Mass., Worcester—PLANT OFFICE—Woodbury & Co., Chadwick Square, plans by Doak Martin, 8 Norwich St., 2 story, 50x140 ft. plant office, Gold Star Blvd. $100,000.

▲ **Mich., Hudsonville**—PLANT—Light Metals Corp., 19456 James Couzens Hy., Detroit, aluminum extrusion plant, $1,000,000.

Minn., Bloomington (P.O. Minneapolis)—INDUSTRIAL, etc.—Bloomington Realty Co., J. W. Bissonnette, 9648 Lyndale Ave. South, 7 or 8 small industrial bldg. units and warehouse 90 St. and Lyndale Ave. South. $250,000-$400,000. Constr. in 1957.

N. J., Middlesex—LABORATORY—Air Reduction Co., 181 Pacific Ave., Jersey City, experimental laboratory and pilot plant on 38 acre tract, near Possumtown Rd. adjoining existing facilities, Piscataway Twp. $500,-000.

N. Y., New York—FACTORY—Stella D'Oro Realty Corp., 184 W. 237 St., Zone 63, plans by Ludwig P. Bono, 601 E. Tremont Ave., Zone 57, altering 2 story factory, 184 W. 237 St. $500,000.

N. D., Fargo—TERMINAL—Wilson Storage & Transfer Co., 35 Riverview Heights, Sioux Falls, S. D., terminal bldg. $100,000.

O., LaGrange—PLANT—LaGrange Metal Refining Co., LaGrange, plant exoansion, incl. office, warehouse and plant bldg. $100,000. Constr. in about 6 weeks.

Pa., Essington—INDUSTRIAL—Linde Air Products Co., Essington, plans by R. G. Frye, supt. and George J. Munson, production engr., c/o owner, 1 story, 120x180 ft., steel, masonry industrial bldg. $175,-000. Bids in April.

S. D., Rapid City—WAREHOUSE, etc.—Nash-Finch Co., 3115 W. Lake St., Minneapolis, Minn., plans by W. Butler Co., Minnesota Bldg., St. Paul, Minn., 1 story, 60,000 sq. ft. warehouse and office. $360,000. To go ahead this year.

Tex., Houston—PLANT—M. J. Crose Mfg. Co., 7020 Long Dr., plant addn., (supplies and materials for pipe line constr.), $150,000.

Tex., Houston—RESEARCH CENTER—Humble Oil & Refining Co., 1216 Main St., research center bldgs. expansion, 3120 Buffalo Speedway. $500,000.

▲ **Tex., Odessa**—PLANT—El Paso Natural Gas Products Co., subsidary El Paso Natural Gas Co., E P N G Co. Bldg., El Paso, refinery-alkylation plant near here. $3,000,000. Universal Oil Products Co., c/o owner, engr. for process design, Fish Eng. Corp., c/o M&M Bldg., Houston, engr. for engineering and and procurement of major equipment. CD 10/9.

Wis., La Crosse—FACTORY—Northern Engraving & Mfg. Co., 303 N. 4 St., factory addn. $200,000.

Ont., Elmira—PLANT EXPANSION —Naugatuck Chemicals Div. of Dominion Rubber Co. Ltd., Erb St., Elmira, 3 story plant expansion, $500,000.

UNCLASSIFIED

Ala., Birmingham—FAIRGROUNDS—Ala. State Fair Auth., Fairgrounds, Birmingham, plans by Chas. McCauley, Jackson Bldg., remodel grandstand at State Fairgrounds. $175,000. Wilmore, Hudson & Luke, Stalling Bldg., consult. engrs.

Calif., Oceanside—SWIMMING POOL—City, City Hall, bond election Apr. 16, municipal swimming pool. $120,000.

Conn., Manchester—BATHHOUSE, etc. Town, bathhouse, repairs to bldgs., modernize swimming pool at Globe Hollow Swimming Pool. $135,000.

▲ **Ill., Hillside**—MAUSOLEUM—Queen of Heaven Catholic Cemetery, 1200 S. Wolf Rd., plans by Harley Ellington & Day, 153 E. Elizabeth St., Detroit, Mich., mausoleum addn. $2,000,000.

▲ **Ind., Indianapolis**—TELEVISION STUDIO, etc.—Crosley Broadcasting Corp., Crosley Sq., 140 W. 9th St., Cincinnati, O., television studio and transmitter, 1401 N. Meridian St. $2,000,000. CD 2/11/53.

Iowa—MAIN REPLACEMENT, etc.—Iowa-Illinois Gas & Electric Co., James Colbert, dist. mgr., 327 Third St. S. E., Cedar Rapids, main replacement and extens. leak clamps, maintenance of pressure and new and replacement services in Cedar Rapids and Marion. $731,565. Bids in May or June.

▲ **Kentucky**—RURAL DISTRIBUTION LINES—Salt River Electric Co-operative Corp., Bardstown, 116 mi. rural distr. lines, four new sub-stations, sys. imprvs. Nelson Co. $1,155,000. CD 2/6/56.

Mass., Waltham—SWIMMING POOL, etc.—Young Men's Christian Assn., 316 Huntington Ave., Boston, outdoor swimming pool and bathhouse, at Y.M.C.A., Cabot Camp. $125,000.

Minn., Golden Valley (P. O. Minneapolis)—PARK SYSTEM—Village, R. W. Owens, clk and admin., R. Stockman, chn. Park Bd., election May 6 will vote on authorizing $200,000 bond issue for expansion of park system. R. Frederickson, village engr.

Mississippi—RURAL DISTRIBUTION LINES—Coast Electric Power Assoc., Bay St. Louis, 137 mi. rural distr. lines, 1,500 kva sub-station, sys. imprvs., Hancock Co. $635,000. CD 2/26/54.

▲ **Mississippi**—RURAL DISTRIBUTION LINES—Southern Pine Electric Power Assoc., Taylorsville, 213 mi. rural distr. lines, new 2,500 kva sub-station and sys. imprvs., Smith Co. $1,680,000. CD 5/20/53.

▲ **Mo., St. Louis**—RUNWAY—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 Blvd. and Market Sts., Zone 3, runway imprv. at Lambert-St. Louis Municipal Airport, St. Louis County, $1,300,000, Horner & Shifrin, Shell Bldg., 1221 Locust St., St. Louis, Zone 3, consult. engrs. CD 1/30.

▲ **Mo., St. Louis**—AIR CONDITIONING SYSTEM—General Services Admin., Pub. Bldg. Services, 2306 E. Bannister Rd., Kansas City 14, Mo., air-conditioning system in U. S. Court and Custom House, 1114 Market St. $1,808,000. Sverdrup & Parcel, Inc., 917 Olive St., Zone 1, consult. engr.

Nebraska—RURAL DISTRIBUTION LINES, etc.—Southern Nebraska Public Power Dist., Grand Island, transmission and distr. lines to serve irrigation pumps, in Phelps, Kearney, Adams, Hamilton, Hall and Merrick Counties. $2,500,000. Raymond H. Reed & Co., Columbus, Neb., consult. engrs. CD 5/3/55.

▲ **N. Y., Brooklyn**—UNDERGROUND PARKING GARAGE—Dpt. P. Wks., Municipal Bldg., Zone 7, underground parking garage,Jay and Johnson Sts. $3,000,000. James G. Fraser, 19 Rector St., New York, Zone 6, engr.

▲ **Ohio**—MARSHALLING YARDS—Pennsylvania R.R. Co., C. J. Henry, ch. engr., Suburban Station Bldg., 1617 Pennsylvania Blvd., Phila. 4, Pa., freight marshalling yards to serve Chrysler Plant at Twingsburg and General Motors, at Euclid Div. Plant in Hudson Twp. 34.8 acre site on Ledge Rd., Summit Co. $2,000,000.

O., Reading—SWIMMING POOL, etc.—City, Market St., Reading, swimming pool and bath house, $150,000 Allendorf Assocs., 411 Wyoming Ave., Cincinnati, consult. engrs. CD 12/12/46.

Okla., Muskogee—ELECTRIC DISTR. SYSTEM—Oklahoma Gas & Electric Co., 321 N. Harvey St., Oklahoma City, enlarged electric distr. system. $876,000.

▲ **Pa., Phila.**—SUBWAY—City, Dpt. Procurement, City Hall Annex, Broad Street Subway extension to Packer Ave. $15,000,000. CD 11/9/44.

Texas—RURAL LINES—Lyntegar Electric Co-operative, Tahoka, 250 mi. rural lines, Lynn Co., etc. $416,000.

Wis., De Pere—SWIMMING POOLS—City, City Hall, one swimming pool in Legion Park and one in VFG Park. $150,000. Foth & Porath, Inc., 214A N. Adams St., Green Bay, consult. engr.

Ont., Port Credit—ARENA—Village, Municipal Bldg., arena, Stavebank Rd. $250,000.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

April 17 Maine

STREETS AND ROADS

April 16, 23 Massachusetts April 25 Connecticut

▲† **Massachussetts**—BA On Or About 5/14—U. S. Eng., 150 Causeway St., Boston, Zone 14 Worcester Diversion, Blackstone River Basin, 3 mi. southerly of Worcester, intake diversion located in Auburn approx. 1¼ mi. south of Leesville Dam or easterly side of Leesville Pond on Dettle Brook, from intake diversion passes southeasterly in a tunnel through Pakachoag Hill, open channel following the general alignment of Hull Brook to Blackstone River, lower portion of channel is in Millbury, CIVENG-19-016-57-80. $4,000,000-$5,000,000. CD 1/15.

HEAVY CONSTRUCTION—LB & CA

▲ **CONNECTICUT**—State Hy. Dpt., 165 Capitol Ave., Hartford.

L. G. **Defelice & Son, Inc.**, Nettleton Ave., North Haven, Conn. CA **$4,882,019.** Proj. 324-01, Conn. Turnpike, approx. 47,822 lin. ft. grading, drainage, c. conc. pavement, incl. 9 grade separation structures, etc., East Lyme, Old Lyme and Waterford. Bids Feb. 18. CD 2/20, under LB.

BUILDINGS—LB & CA

▲ **John A. Volpe Constr. Co.**, 54 Eastern Ave., Malden, Mass. CA Over **$10,000,000.** North Shore SHOPPING CENTER, incl. department stores, shopping center, PEABODY, MASS. Allied Stores Corp., Junction Andover St., Rte. 114 and 128, Peabody, Mass. Jordan-Marsh Co., 450 Washington St., Boston, Mass., lessee. Bids Feb. 20. CD 2/18.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

April 25 New York April 26 Pennsylvania

STREETS AND ROADS

April 25 New Jersey, New York April 26 Pennsylvania

BUILDINGS—BA

▲ **N. J., New Brunswick**—HOSPITAL—BA 4/17—Bd. Trustees St. Peter's Hospital, Easton Ave., 2½ story wing and two story wings connecting with existing hospital. $4,500,000. Epple & Seaman, 901 Broad St., Newark, archts. CD 11/22/55.

▲ **N. J., Trenton**—CATHEDRAL, etc.—BA 4/23—Diocese of Trenton, St. Mary's Parish, 153 N. Warren St., cathedral and rectory, North Warren and Bank Sts. $1,400,000. Ricker & Axt, 6115 Hudson Ave., West New York, archts. CD 3/28.

▲ **N. Y., New York**—HOUSING—BA 4/30—New York City Housing Auth., 299 Broadway, Zone 7, (1) foundations and appurtenances (2) general constr. (3) foundations and general constr. (4) heating and ventilating (5) electric work , and (6) plumbing for Castle Hill Houses (Proj. No. NYS-76) located in area bounded generally by Seward., Castle Hill, Cincinatus, Havemeyer, Lacombe and Olmstead Aves., Bronx Boro, Plans deposit $75; furnishing, installing elevators. Plans deposit $25. CD 10/3.

HEAVY CONSTRUCTION—LB & CA

▲ **Warshaw Constr. Corp.**, Warshaw Bros., Inc., and **Federal Constr. Corp.**, 101 Park Ave., New York 17, N. Y. LB **$2,199,270.** (2 bidders) general constr. coal handling structures for 59th Street Power Plant, Manhattan, P-114, Contr. No. 1, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Mar. 29. CD 3/13.

▲† **Philsan Co.**, 152 W. 42 St., New York 36, N. Y. CA **$1,722,453.** runway extension, Niagara Falls Air Force Base, NIAGARA FALLS, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. CD 3/22, under LB.

▲† **Five Boro Constr. Co.**, 2 Lafayette St., New York 7, N. Y. CA **$1,765,000.** (8 bidders) central heating plant and steam distr. sys., FY 1957 program, Griffiss Air Force Base, ENG-30-075-57-322, ROME, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. CD 3/11, under LB.

BUILDINGS—LB & CA

▲† **S. S. Silberblatt, Inc.**, 25 W. 45 St., New York 19, N. Y. CA **$25,875,100.** (3 bidders) 1,685 HOUSING Units, Armed Services Housing Proj. (Capehart), ENG-36-636-57-36, PLATTSBURGH, N. Y. Base Procurement Office, Plattsburgh Air Force Base, N. Y. CD 2/27, under LB, Commercial Buildings.

▲ **Storyland Estates, (N. J. Miller)** 818 Green Grove Rd., Neptune, N. J. CA **$3,300,000.** 200 HOUSES, Rte. 66 and Green Grove Rd. to be known as Storyland Estates, NEPTUNE, N.J. N. J. Miller, 818 Green Grove Rd., Neptune, N.J. Percy Simon, 362 Cedar Lane, Teaneck, N.J. archt.

▲ **Donald Aronow**, 647 Mountain Dr., South Orange, N.J. Owner Builds. **$1,500,000.** 74 HOMES in Vernon Way, WOODBRIDGE, N.J. Sailer & Sailer, 64 Broad St., Elizabeth, N.J. archts.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

April 16 South Carolina

STREETS AND ROADS

April 16 South Carolina

HEAVY CONSTRUCTION—LB & CA

▲† **T. A. Loving & Co.**, Bank of Wayne Bldg., Goldsboro, N. C. CA **$1,650,925.** 50-100 bed HOSPITAL addn., Seymour Johnson Air Force Base, ENG-31-075-57-23, GOLDSBORO, N. C. U. S. Eng., 308 Customhouse, Wilmington, N. C. Bids Mar. 19. CD 4/1, under LB.

BUILDINGS—LB & CA

▲ **Plak Constr. Co., Inc.**, 3490 NW 71 St., Miami, Fla., CA Est. **$6,000,000-$10,000,000,** 10 story, penthouse, bsmnt., 323 x 375 ft. CB-S, Diplomat HOTEL 2 swimming pools, State Rd. A. I. A., Hallandale Blvd., HOLLYWOOD, FLA. Samuel Freidland, c/o Norman M. Giller & Assocs., archts., 1833 Bay Rd., Miami Beach, Fla. Jules P. Channing & Assocs., 71 NW 54th St., Miami, Fla., engrs. CD 12/6/56, under CA.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

April 17 Michigan

STREETS AND ROADS

April 17 Michigan

BUILDINGS—BA

▲ **Mich., Chelsea**—SCHOOL—BA 4/30—Bd. Educ., Chelsea School Dist., Howard Flintoft, secy., high school. $2,000,000. Plans deposit $25, refundable. Yamasaki, Leinweber & Assoc., 103 W. Fifth St., Royal Oak, archts. CD 7/9.

▲ **O., Cincinnati** — HOUSING — BA 6/6 — Cincinnati Metropolitan Housing Auth., 595 Armory St., 375-units, 89 buildings, public housing, Winton Rd. $4,-000,000. CD 3/22.

BUILDINGS—LB & CA

▲ **G. W. Atkinson Co.**, 525 E. Hudson St., Columbus, O. CA Total est. **$2,000,000.** general constr. DISTRIBUTION CENTER, incl. two bldgs., sales office, COLUMBUS, O. International Harvester Co., 180 N. Michigan Ave., Chicago, Ill.; **Huffman-Wolfe Co.**, 669 N. High St., Columbus, O. CA heating, ventilating and plumbing contract. (Columbus, O.).

▲† **Corbetta Constr. Co.**, 208 LaSalle St., Chicago, Ill. LB **$8,122,000.** BARRACKS, SUBSISTENCE BLDG., CLASSROOM, SHIPS COMPANY BARRACKS, water and steam sys., Great Lakes Naval Training Station, GREAT LAKES, ILL. Ninth Naval Dist., Great Lakes, Ill. Bids Mar. 21. CD 2/25.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

April 18, 19 Kansas April 19, 20 Texas

STREETS AND ROADS

April 16 Colorado April 18, 19 Kansas

April 19, 20 Texas

▲† **Tex., Amarillo**—RUNWAYS, etc.—BA 5/8—U. S. Eng., Box 61, Tulsa 2, Okla., runways, taxiways, aprons, incl. 950,000 sq. yd. cement concrete, 350,-000 sq. yd. cement concrete overrun, blast pads, 52,-000 sq. yd. double bit. overrun surfacing, etc., Amarillo Air Force Base. $3,750,000. CD 2/18/53.

HEAVY CONSTRUCTION—LB & CA

▲ **SOUTH DAKOTA**—State, Dpt. Hys., Pierre,

S. D.—**John F Beasley Constr. Co.**, 20 N. Wacker St., Chicago, Ill. CA **$2,977,690.** (7 bidders) bridge constr., superstructure 4,583 ft. superstructure 0.868 mi., WAR 181 (2), Dewey and Potter Counties;

S. D.—**H. Estervig**, Huron, S. D. CA **$81,329.** (7 bidders) structure and approach grading one 322 ft. continuous comp. I-beam bridge 0.406 mi., S 292 (2), Sanborn Co.;

S. D.—**Graves Brothers Constr. Co.**, Melvin, Iowa. CA **$487,759.** (9 bidders) structures, one 339 ft. I beam viaduct, one 361 ft. I-beam viaduct, one 794 ft. complete girder viaduct, F 010-1(1), Fall River Co.;

S. D.—**Dave Gustafson & Co., Inc.**, 502 E. 6 St., Sioux Falls, S. D. CA **$133,438.** (7 bidders) structures one 254 ft., I beam viaduct, one 186 ft. continuous concrete bridge, one twin 7x7 ft., 48 ft. rein.-con box culvert, S 3051 (1), Hamlin Co.;

S. D.—**Turner Constr. Co.**, Sioux Falls, S. D. CA $368,250. (11 bidders) part of structures I 092-3 (1) and I 092-4 (1) Pennington annd Jackson Counties. Grand total $4,048,466. Bids Mar. 26. CD 3/14.

▲† **Lipsett, Inc.**, Yankton, S. D. CA **$4,413,851,** est. $4,632,425. constr. foundations and furnishing, erecting steel towers for Utica Junction-Sioux Falls 230 kv transmision line, South Dakota; and Fargo-Granite Falls 230 kv transmission line, North Dakota, Missouri River Basin Proj., Specs. DC 4844 and DC 4845, SOUTH DAKOTA and NORTH DAKOTA. Bureau Reclamation, Dpt. Interior, Huron, S. D. CD 3/29, under LB.

▲ **R. H. Fulton & Co.**, 2323 Erskine Rd., Lubbock, Tex., CA **$3,250,000;** 127 mi. 20 in. crude line along route Wink to El Paso, TEXAS. Pasotex Pipe Line Co., City Natl. Bank Bldg., Houston, Tex. CD 12/5.

▲† **Foley Brothers, Inc.**, New York Bldg., St. Paul, Minn., CA **$2,289,052.** Anchor Dam (concrete) and access road Missouri River Basin Proj., Big Horn Basin Div., Spec. DC 4831, WYOMING, Bureau Reclamation, Dpt. Interior, Thermopolis, Wyo. Bids Feb. 28, awarded Mar. 27. CD 3/5, under LB.

BUILDINGS—LB & CA

▲ **Fruin-Colnon Contg. Co.**, 1706 Olive St., St. Louis 3, Mo. CA Est. **$3,000,000.** 2 story, 375x400 ft., 75x400 ft. second floor OFFICE area, masonry, steel, concrete RESEARCH and DEVELOPMENT LABORATORY No. 102, Brown Rd. south of Wabash R.R. in Berkeley, adjacent to airport, ROBERTSON, MO. McDonnell Aircraft Corp., Lambert-St. Louis Municipal Airport, St. Louis 21, Mo. Sverdrup & Parcel, Inc., 915 Olive St., St. Louis 1, Mo., engr.

▲ **State Dpt. Admin.**, State House, Topeka, Kan. rejected bids Mar. 27, PATIENTS TREATMENT UNIT at Topeka State Hospital, TOPEKA, KAN. CD 3/19.

▲† **U. S. Eng.**, Box 1538, Albuquerque, N. M., cancelled bids to have been opened Apr. 24, 490 unit frame masonry Capehart HOUSING, ENG-29-005-57-7, Fort Bliss, EL PASO, TEX. **$5,000,000-$10,000,000.** CD 3/21.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

STREETS AND ROADS

April 18 Nevada

▲† **Calif., Travis Air Force Base**—RUNWAY—BA 4/26—U. S. Eng., 1209 8th St., Sacramento, constr. runway parallel and facilities at Travis Air Force Base, near Fairfield, ENG-04-167-57-49. $3,500,000.

HEAVY CONSTRUCTION—LB & CA

▲ **CALIFORNIA**—State Dpt. P. Wks., 1120 N. St., Sacramento,

Calif.—**Fredericksen & Kasler**, 212 13th St., Sacramento, Calif. CA **$2,718,100.** grading, paving 3.9 mi. U. S. 99 with concrete on cement treated subgrade and constr. 9 bridges and 3 pumping plants between 0.5 mi. south and 1.5 mi. north of Madera, Madera Co.;

Calif.—**Granite Constr. Co.**, P. O. Box 900, Watsonville, Calif. CA **$1,039,020.** constr. 5.6 mi. 4-lane divided freeway between 1 mi. north of Greenfield and Salinas River. Monterey Co. Bids Mar. 20. CD 3/25, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. S., Sacramento, bids opened 4/3.

Johnson, Drake, & Piper, Inc., 9009 San Leandro St., Oakland, Calif., LB **$4,935,599;** constr. full 8-lane freeway facility on viaduct section involving Madison St. undercrossing 6th St., outer viaduct, 5th and overhead on Eastshore Freeway in Oakland between 0.25 mi. east of Fallon St. and 0.22 mi. west of Market St., Alameda Co. CD 3/8

▲† **Alwood Corp.**, 203 E. Broadway, Burbank, Calif., CA **$2,610,415;** San Antonio and Chino Creek imprvs., San Antonio Dam to Holt Ave., CIVENG-04-353-57-31, CALIFORNIA, U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 6. CD 4/2 under LB.

BUILDINGS—LB & CA

▲ **Harris Constr. Co.**, P.O. Box 109, Fresno, Calif., LB **$3,212,972.** (6 bidders) 4 story, bsmnt., 128,000 sq. ft. 243 bed, steel, concrete HOSPITAL addn., incl. ward, kitchen, nursery, etc., FRESNO, CALIF. Fresno Community Hospital, 1234 "S" St., Fresno, Calif. Bids Mar. 28. CD 2/27.

▲ **Rossmoor Homes Inc.**, Los Alamitos, Calif., Owner Builds. **$4,473,114.** 311 DWELLINGS, 1,500 sq. ft., Tract 3129, LOS ALAMITOS, CALIF.

▲ **Friedland Bros.**, c/o Friedland Hill Motel, Merced, Calif., Owner Builds. **$2,000,000,** 22,000 sq. ft. SHOPPING CENTER, incl. 27 stores, near Castle Air Force Base, MERCED, CALIF.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ **Belmont Constr. Co. Ltd.**, 716 Cambie St., Vancouver, B. C., LB **$3,214,017** (2 bidders) tunnels, penstock, foundations and related work at Ash River development, near Port Alberni, BRITISH COLUMBIA. B. C. Power Comn., P. O. Box 500, Victoria, B. C., Bids Mar. 28. CD 3/20.

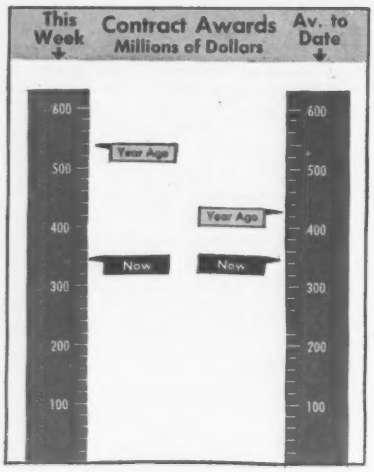
BUILDINGS—LB & CA

▲ **Christensen & Macdonald Ltd.**, 618 Tegler Bldg., Edmonton, Alta., CA **$5,000,000.** 12 story, 85x163 ft., steel, masonry OFFICE, 104 St. south of Jasper Ave., EDMONTON, ALTA. Northwestern Utilities Ltd., 10124 104 St., Edmonton, Alta. Bids Mar. 15, awarded Mar. 27. CD 2/20.

(Proposal Advertisement see pp. 153 to 155)

Construction Scoreboard

Activity this Week



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 15 wks 1957	Chge %
	millions		
Federal	$84.9	$824.5	+54
State and Municipal	141.9	1,976.1	+13
Total Public	226.8	2,800.6	+23
Total Private	117.7	2,392.7	−44
U. S. Total	$344.5	$5,193.3	−21
By Type of Work			
Waterworks	$2.3	$96.1	+14
Sewerage	7.3	120.5	−36
Bridges	15.6	200.7	+19
Highways	76.3	834.4	+28
Earthwork, Waterways	12.6	331.5	+73
Buildings:			
Public, Excl. Housg.	35.0	610.8	+11
Public Housing	28.4	208.4	+99
Private Housing	64.3	829.7	−56
Commercial	26.4	482.2	−18
Industrial	22.3	911.3	−41
Unclassified	54.0	567.7	−2
U. S. Total	$344.5	$5,193.3	−21

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

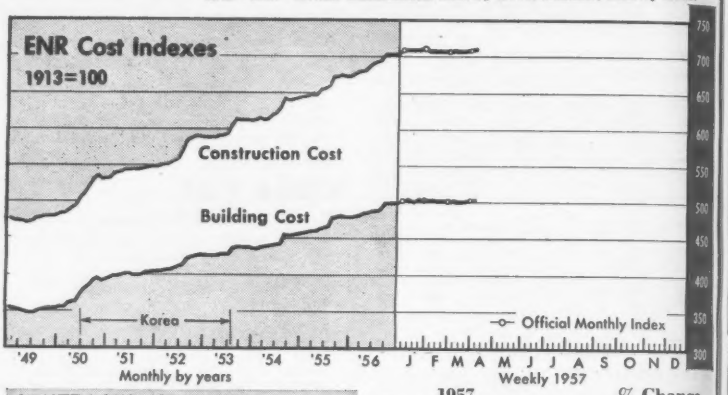
NEW CAPITAL FOR CONSTRUCTION

	Week of Apr. 4	Cum. 14 wks 1957	Chge '56-'57 %
	millions		
Corporate Securities	$279.7	$1,895.5	+143
State and Municipal:			
All Except Housing	129.8	1,527.8	+20
Housing	...	41.5	+104
Federal Loans	2.3	39.1	+33
Federal Aid	...	....	...
Total Nonfederal	$411.7	$3,504.0	+66
Federal Appropriations:			
In U. S.	...	....	−100
Outside U. S.	...	....	...
Total New Capital	$411.7	$3,504.0	+64

Cost Indexes as of Now

ENR INDEXES (1913 = 100), 20-cities' average	Week of April 4 1957	% Change from Mar. 7 1957	% Change from April 5 1956
Construction Cost	710.64	+0.1	+4.0
Building Cost	501.51	0	+3.2

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.



CONTRACTS AWARDED

	1957 March (millions)	1957 3-Mos. (millions)	% Change from 1956 Mar.‡	% Change from 1956 3-Mos.
Total U. S., ENR reported	$1,467.5	$4,567.3	−23	−21
Private	610.6	2,147.4	−53	−43
Public	856.9	2,419.9	+44	+20
State and Municipal	567.9	1,709.3	+21	+12
Federal	289.0	710.6	+124	+49
ENR Volume Index. 1913 = 100	553	534	−30	−26

‡ Based on weekly average.

NEW CONSTRUCTION CAPITAL

			Mar.	3-Mos.	2-Mos.*
Total U. S.	$1,094.1	$3,092.3	+37	+55	+79
State and Municipal Bond Sales	504.3	1,439.6	+10	+18	+29
Corporate Security Sales	571.9	1,615.8	+89	+127	+178
Federal Loans, Aid (nonfederal work)	17.9	36.9	+125	+48	+11
Federal Appropriations (federal work)	0	0	−100	−100	0

* Correction of Mar. 14 issue, based on weekly average.

MATERIALS SHIPMENTS

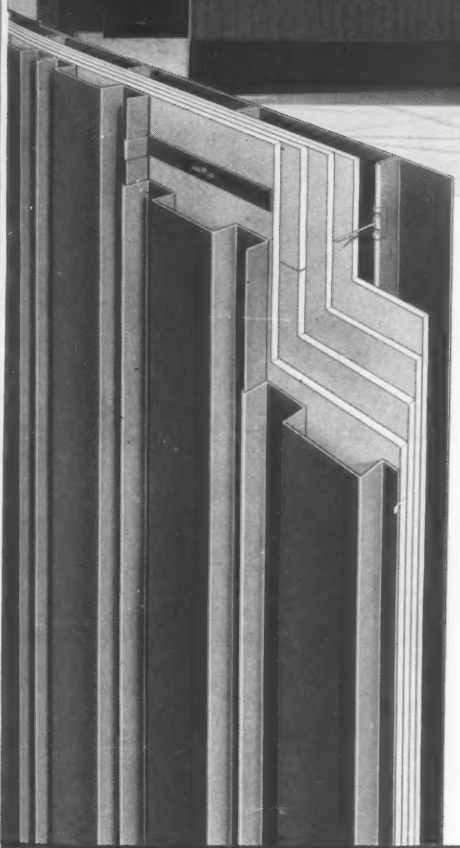
Unit	1956-57 Dec. (D) Jan. (J) Feb. (F)	Cum. (No. of Mos.)	Percent Change from Year Ago Mo.	Cum.
Portland Cement, Bur Mines, thous bbls	17,822(D)	308,767(12)	+5	+5
Conc Paving Awards, PCA, thous sq yd	7,229(F)	14,392(2)	−12	−5
Fabricated Structural Steel, thous tons	278(F)	540(2)	−2	+1
Bookings, AISC, thous tons	266(F)	564(2)	−20	−24
Reinforcing Bars, Net, AISI, thous tons	224(J)	224(1)	+23	+23
Lumber, NLMA, mil fbm	2,625(J)	2,625(1)	−10	−10
Orders, mil fbm	2,642(J)	2,642(1)	−16	−16
Production, mil fbm	2,720(J)	2,720(1)	−7	−7
Douglas Fir Plywood, DFPA, 3/8" basis				
Production (aver per week), mil sq ft	102.1(F)	98.0(2)	−3	−5
Orders (average per week), mil sq ft	89.5(F)	89.6(2)	−10	−8
Clay Products, Bureau of Census				
Brick, Ungl, Common, Face, mil bri	397.2(D)	6,698.1(12)	−17	−4
Vitrified Clay Sewer Pipe, thous tons	109.3(D)	1,857.7(12)	−7	−1
Structural Tile, Unglazed, thous tons	46.1(D)	674.1(12)	−23	−19
Asphalt Products, Bureau of Census				
Asphalt Roofing, thous sales sqs	3,853(J)	3,853(1)	+21	+21
Asphalt Siding, thous sales sqs	103(J)	103(1)	+24	+24
Aluminum, Wrought, Net, Bur Census				
Sheet and Plate (non-heat treatable), mil lbs	81.8(J)	81.8(1)	−16	−16
Wire and Cable, mil lbs	27.0(J)	27.0(1)	+12	+12
Extruded Shapes (soft alloys.), mil lbs	49.4(J)	49.4(1)	−10	−10

EMPLOYMENT AND FAILURES

Contract Const Employment, BLS, thous	2,741(F)	2,732(2)‡	+6	+6
Contractor Failures, Dun & Bradstreet				
Number	180(F)	357(2)	+28	+34
Liabilities, thous	8,440(F)	19,112(2)	−15	+19

‡ Average per month

Underwriters' Rated FIRE WALLS



Section of Mahon Metalclad Fire Wall showing Construction Features. Four layers of ½" Plaster Board are sandwiched between Roll-Formed Steel Wall Plates. All Joints in both Wall Plates and Plaster Board are Offset.

...for Interior or Exterior Use!

Mahon Underwriters' Rated Metalclad Fire Walls are now available for use as interior dividing fire walls or as exterior curtain-type fire walls. They can be installed in old or new buildings, of either steel or reinforced concrete construction, where a fire hazard may exist, or where the requirements of Fire Insurance Underwriters or Building Codes must be met. The Mahon Metalclad Fire Wall is field constructed. It has been tested by the Underwriters' Laboratories, Inc., and has been given a Two-Hour Rating for use as either an interior or exterior fire wall. When employed as an exterior wall, Fiberglas insulation can be inserted between the interlocking ribs of the inner wall plates, thus providing insulating properties superior to that of a conventional masonry wall with furred lath and plaster. Exterior Wall Plates may be Aluminum, Stainless Steel or Enamel Coated Cold Rolled Steel. The important feature of the Mahon Fire Wall is the Impaling Clip with its Stainless Steel Spike (Patents Pending) which permits construction of the wall with only .0048 sq. in. of through-metal per sq. ft. of wall area. Mahon engineers will cooperate fully in supplying information and assistance in adapting this product to your particular requirement.

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Connecticut Sells Turnpike Bonds

Successful offering follows concessions to investors; $50 million issue carries net interest cost of 3.69%

Permanent financing for the Connecticut Turnpike cleared a difficult hurdle last week when the state marketed $50 million worth of turnpike bonds at an interest rate of 3.69%.

The issue was sold to a syndicate headed by Lehman Brothers and the First Boston Corporation.

Last week's sale was the first made under a law passed earlier this year by the legislature permitting negotiated sales rather than sales by public bidding.

For State Treasurer John Ottaviano, Jr., and other members of the expressway bond committee, the sale came as a welcome change from conditions that prevailed in the bond market several months ago. With $200 million in bonds already sold for the $450 million project, the committee last fall failed to get a single bidder for a $56 million issue.

However, the legislature then amended the original act and removed a 4% interest ceiling. Other changes also were made to make marketing of the bonds easier.

The new amendments permit the state to negotiate either private or public placement of the bonds and to waive a clause requiring 10 days' notice prior to sale of an issue.

Another change divides the turnpike into two sections for financing purposes with a priority established for permanent financing of the section west of the Connecticut River.

Explaining the division of the turnpike into two sections, Mr. Ottaviano said the move "will not affect the construction program of the eastern section as costs thereof will be temporarily financed by general obligation notes of the state."

He pointed out however, that no expressway bonds will be issued for the eastern section until all costs of the western section have been permanently financed—and then only if independent engineers' estimates again establish that the entire turnpike will be self-supporting.

The western section of the turnpike will extend from Greenwich to the Connecticut River at Saybrook, while the eastern section will go from Saybrook to Killingly, near the Rhode Island line.

The western section of the 126 mile turnpike accounts for 88% of the estimated costs and 94% of estimated revenues.

While Connecticut's concessions to the tight money market were yielding their first benefits, Colorado was taking similar steps.

Colorado's Gov. Steve McNichols signed legislation raising the maximum interest rate for Highway Department anticipation warrants. The maximum was increased from 2.5% to 3.75%.

The interest ceiling was raised because the Highway Department last January was unable to sell $8 million worth of warrants to assist in financing new construction.

Governor McNichols asked for the legislation after State Highway Engineer Mark U. Watrous warned that failure to sell the warrants would cause a serious cutback in the state's roadbuilding program.

Proceeds of the anticipation warrants are used to match federal funds, under the 90-10 federal-aid program.

Public Works Plan

Los Angeles County maps $311 million program

A 10 year, $311.8 million program of capital expenditures for Los Angeles County, Calif., has been outlined by County Manager Arthur J. Will in a report to the Board of Supervisors.

Of the total, $67 million will be for new construction and alterations to existing structures within the central administrative area, exclusive of general hospital and Parks and Recreation Department requirements.

The construction program will provide an additional 1.5 million sq ft of office space, enough to meet the county's needs through 1970, according to Mr. Will.

Included in construction plans for the 1957-58 fiscal year are $4.4 million for courthouse improvements, $3.8 million for the Marina del Rey boat harbor, and $1.5 million for the Long Beach courthouse building. These are among the major items in the total $29.7 million allocated for the fiscal year beginning July 1.

No dates have been set yet for advertising of the construction contracts.

The $311.8 million needed for the long-range program will be derived from the following sources, according to Mr. Will: from the annual tax levy, $234 million; from the cumulative capital outlay fund, $26 million; and from bond issues, $42 million.

More Private Work

Pressure increases for early upturn in awards

Pressure increased during March for a reversal of the sharp downtrend in private construction contracts.

The flow of new proposed projects into the ENR backlog of private work was three times as large as the value of other projects moving out of the backlog into construction contracts. This pressure gap expanded to its widest point since the first quarter of 1956.

This buildup is considered a strong indication that private projects soon will move out of the backlog into contracts in an increasing volume—and that total private awards will turn upward.

The pressure gap for private work has been expanding since late in the third quarter of last year. This has been caused by a combination of factors, an increased in proposed work and a decline in contract awards.

Although the rise in proposed work has leveled off in the last two to three months, the flow of proposed projects from the planning state into contracts has slowed substantially.

This slowdown in projects moving from the backlog to contract has occurred principally in the industrial and mass housing fields. Commercial building, in contrast, has been moving through the planning stage into contracts in sharply increasing volume since the beginning of the year.

Bond Issue Approvals Lag Behind 1956 Period

Fewer state and municipal bond proposals were offered to the voters in the first quarter than in the same period in 1956, and voters approved a smaller proportion this year than last, according to the Daily Bond Buyer.

Of $426.5 million in issues submitted to the voters in the first quarter, $306.6 million were approved and $119.8 million rejected. The total offering was 37% less than in the first quarter of 1956.

(*B&F continued on page 142*)

Milwaukee Plans Sale of $22 Million Bonds April 16

The Milwaukee, Wis., Public Debt Commission has set April 16 as the date for sale of $22.2 million worth of city bonds. An early sale is necessary to avoid a delay in the city's 1957 general construction program.

Sale of the bonds has been delayed for two months by the commission because of the sluggish bond market. City construction funds dwindled during the waiting period, but the city controller believes enough funds are on hand to take care of construction payouts until the bonds are sold.

Milwaukee had planned to spend nearly $4.9 million on its waterworks expansion program this year. About 80% of that work has been postponed, however, pending a city request to the Wisconsin Public Service Commission for a water rate increase. A separate bond issue will be sold to cover that program if the rate increase is approved.

The $22.2 million in bonds to be sold April 16 includes five different issues: $5.5 million in sewer bonds; $5.2 million for streets; $4.7 million for schools; $4 million for bridges and $2.7 million for harbor improvements.

(*B&F continued on page 145*)

Construction Markets

Denver: An On-the-Spot Report

Booming highway, commercial and public works activity in the Denver construction market in the next few months will more than offset a slackening in homebuilding.

Except for the housing decline, all types of construction are expected to top last year's records during the peak months ahead.

W. S. Hibberd, secretary-manager of the Associated Building Contractors of Colorado, Inc., says "Contractors are very optimistic." Reasons for the optimism are not difficult to find.

Representative of the outlook in Denver's tri-county metropolitan area is this report from the Colorado Highway Department:

In the next four months, bids will be advertised for $6.2 million worth of new construction on the Valley Highway, main freeway through Denver. That will bring to $12 million the amount of state highway construction under contract this summer in the Denver area. It compares with only $2.5 million in 1956.

Denver's municipal government also has an ambitious summer construction program that will surpass last year. According to City Engineer Dewey Wright, contractors in the next four months will have a chance to bid on $2.3 million in street and bridge work; $1.5 million worth of paving; $600,000 worth of sanitary sewers; $143,000 worth of alley paving and $400,000 in miscellaneous construction.

Two major public buildings are expected to be offered for bids in the next few weeks. They are a $7.5 million Post Office Terminal Annex and a $3.2 million state office building.

Denver will build more schools this year than in 1956. The Denver School Board expects to award contracts in May on four buildings totaling $1.2 million. And, in June, contracts will be awarded for some $2.7 million in school construction.

Major school construction programs also are planned in Denver's three surrounding counties, Arapahoe, Adams and Jefferson. One architect is working on plans for $10 million worth of high school construction that will reach the bid stage by late summer.

Commercial building will maintain its current fast pace. Among major jobs to be advertised in the next few weeks is the $7.5 million Brown Palace West, a new addition to the city's Brown Palace Hotel.

Warehouse and other distribution facilities represent another busy construction field in Denver, which serves as a marketing center for the Rocky Mountain area.

Advance estimates of Denver's 1957 commercial and industrial building program, based on a detailed survey, place the year's total at more than $100 million.

"We are hitting that pace now and there is nothing to indicate it will slow down through the summer," ENR was told by Dallas Cook, director of industrial and business development for the Denver Chamber of Commerce.

However, there is nothing in the immediate future that would exceed in size the city's two biggest commercial projects. The two, both under construction, are the $35 million Court House Square Development by Webb & Knapp, Inc., and the 28 story First National Bank Building, which will cost $15 million.

Financing, which has been a critical problem for homebuilding, apparently is not a serious problem in the commercial and industrial field in Denver. An agent for several major insurance companies and institutional lenders commented that money is available for sound commercial construction, but added, "Some odd ball projects and marginal businesses may have trouble, but there's money for the good building in a good location with prospects of good tenants."

Denver homebuilders, however, are pessimistic about financing. Unless Congress liberalizes home financing by government agencies such as the Veterans Administration and the Federal Housing Administration, the city's homebuilders see little improvement in store for their depressed market.

Banks report they are making only conventional loans, mostly at 6%. Some conventional loans for housing are made with downpayments as low as 15%; usually the downpayments are considerably higher.

Several proposed mass housing projects have been killed because Denver recently adopted an ordinance requiring developers to pay the city $2,000 per acre for any land annexed by the city. One developer told ENR, "I planned a 400 acre project, but how could I pay the city $800,000 in advance and have any money to finance construction?"

One bright spot in home construction is south of Denver in the Littleton area, where a $20 million guided missile plant is under way, along with several other supplying plants that will cost from $10 million to $15 million. Because of the influx of plants, Littleton officials report 1,000 homes will be started this summer.

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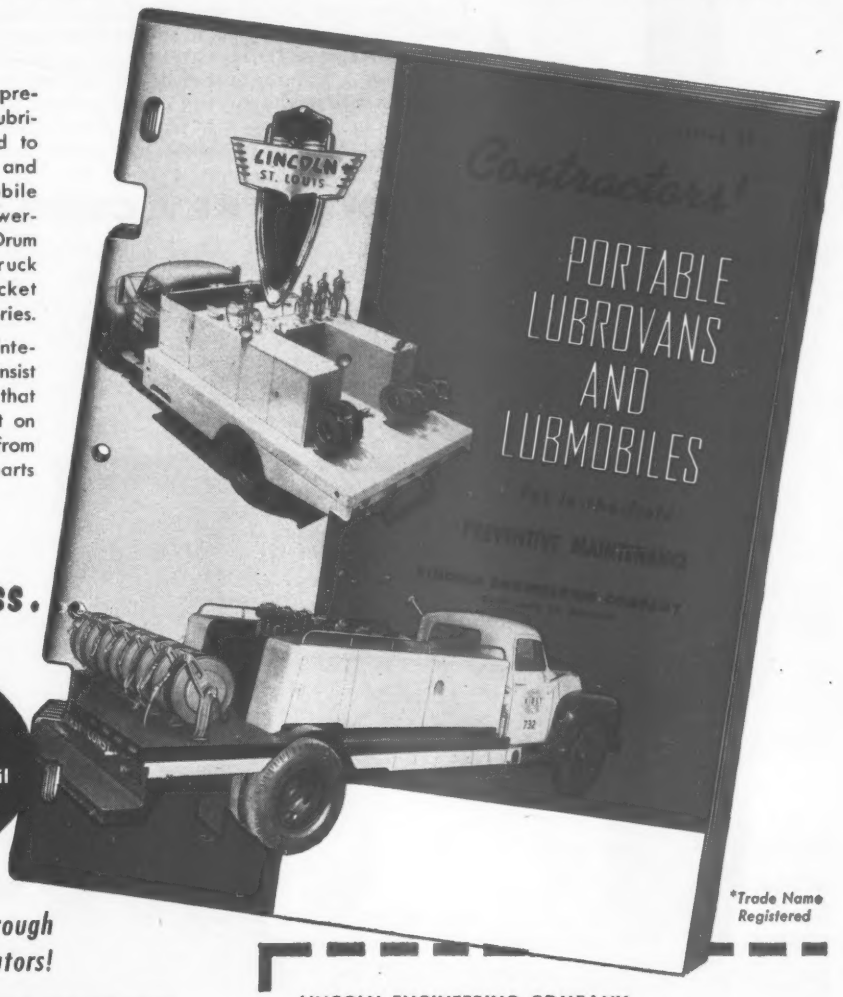

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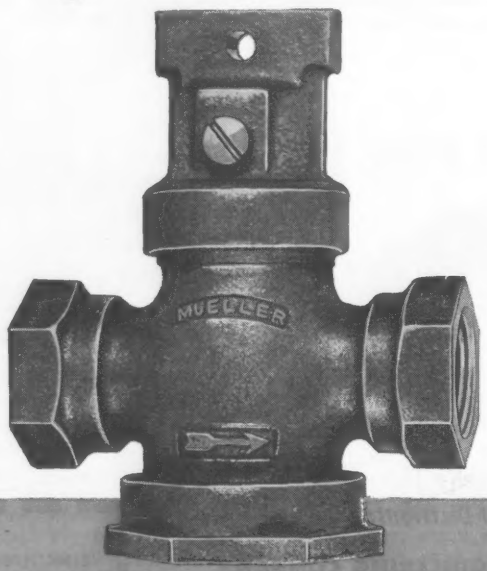

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New Euclid Plant

Crawler tractor facility is part of major expansion

Expansion-minded Euclid, the construction equipment division of General Motors, last week broke ground for a 600,000 sq ft plant at Hudson, Ohio, which will be used solely for production of TC-12 and C-6 crawler tractors.

Before work on the new plant had even started, Euclid officials disclosed that plans already are on the drawing boards for a 400,000 sq ft service parts plant to be built in the near future, and, for the more distant future, revealed plans, not yet drawn, for a division office headquarters building.

With construction of the new Hudson, Ohio, manufacturing plant, Euclid hopes to become a three sided construction equipment company, with equal production of hauling equipment, scrapers and crawler tractors.

Production of crawler tractors is expected to reach 2,000 units a year, divided equally between the TC-12 and the C-6.

Some Euclid officials estimate that there is a market for $1 billion worth of roadbuilding equipment a year, with half of this going for crawler tractors.

These officials feel that the accelerated federal-aid highway program will continue to affect roadbuilding potential even after the next 13 to 15 years.

VA Construction Inspectors To Take Refresher Course

Veterans Administration construction technicians who process GI home loans will take a refresher course, the VA announced last week. Schedules for the courses are being set up in various sections of the country.

Subjects included in the course are land planning, soil mechanics, structural framing, heating, insulation and ventilation, plastering and electrical and plumbing installation.

Construction technicians who complete the course will instruct others who review plans and specifications or who inspect the construction of homes covered by VA-guaranteed mortgages.

FHA Home Loan Requests Go Up Again in February

February marked the second consecutive monthly increase in proposed housing units in builders' applications for Federal Housing Administration mortgage insurance.

The number of units covered by these applications rose from 10,548 in January to 12,102 in February. This figure excludes multi-family projects, which rose to 9,874 units, more than twice the January number.

Further sign of an improving FHA mortgage market is that total units in proposed single family and multi-family project applications surpassed February 1956 by 9%. It was the first time in exactly two years that the current month's total had exceeded the year ago figure. But, all of the gain was in multi-family projects.

Kaiser Industries Plans Merger With McEachern

Kaiser Industries Corporation plans to acquire the J. A. McEachern Investment Co., formerly named the General Construction Co.

The two firms have been closely associated for years in heavy construction projects and as founding stockholders of Kaiser Aluminum and Permanente Cement Co.

McEachern's construction business would be operated by the subsidiary General Construction Co. which would not be involved in the merger with Kaiser Industries.

The construction firm would be purchased by a group of McEachern stockholders.

The merger would increase Kaiser Industries' interest in Kaiser Aluminum from 37% to about 45% and would raise its holding in Permanente Cement from 30% to 39%.

Bond Plans Lose

Public works projects voted down in Detroit

Economy sentiment moved from Washington to Detroit last week; public works plans took a beating at the Michigan polls.

Detroit voters flatly rejected a proposal that would have brought a two year, three mill tax increase to pay for new schools. This would have provided $33 million for an additional 700 classrooms.

It marked the first time in recent years that Detroit voters have turned down a tax proposal to aid school construction.

The city also failed to get voter support for a $50 million bond issue to pay for additional sewer facilities.

• **Suburbs reject projects**—The city of Detroit was not alone in its sudden economy drive. The suburbs also busily voted down a number of public works plans. Hazel Park residents decided they

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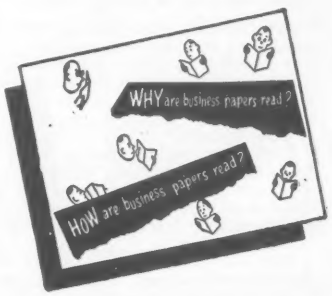

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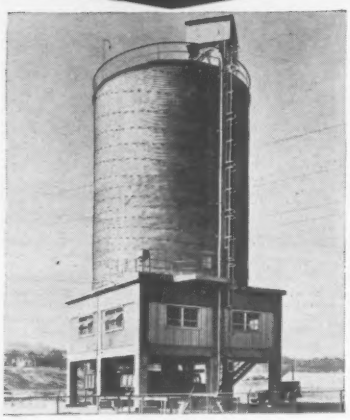

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could do without a $204,000 swimming pool and ice rink. And, citizens of Harper Woods felt the same way about a $106,000 library and a $190,000 community center.

East Detroit rejected a three mill tax increase to pay for a police station and improvement of park sites.

Pleasant Ridge voters vetoed a proposed $175,000 community center.

Three bond issues, totaling $728,000, were rejected in Grosse Pointe Woods, where officials had planned to spend the money for a municipal building, a park site and improvement of a park.

Walled Lake voted against a one mill tax for a free public library and Berkley turned down a proposal to borrow $150,000 for construction of a new library.

Commerce Township defeated a proposed two mill tax increase to improve county roads; and in Macomb County, voters balked at a measure to raise taxes to help finance a $12 million roadbuilding program.

• **Some issues win**—The Detroit economy sentiment was reflected elsewhere in the state, but there were a few exceptions to the trend:

Jackson electors approved a $2 million bond issue for expansion of Foote Hospital.

Huntington Woods endorsed spending of $65,000 for widening of roads.

Farmington Township approved a three-tenths mill tax increase to support a library and the City of Farmington passed a $75,000 bond issue to pay for facilties and equipment for the city's public works department.

March Demand Increased For Douglas Fir Plywood

New orders received by Douglas Fir Plywood mills rose sharply in March. The new orders last month were 24% above the January-February average and 17% above March 1956.

Last month's Douglas Fir Plywood orders totaled 447 million sq ft (on a three-eighths inch rough basis), according to ENR's analysis of Douglas Fir Plywood Association data for the four weeks ended March 30. This brought the first quarter order volume to a little more 1.25 billion sq ft, only 1% below last year. (At the end of February, orders were lagging 9% behind last year.)

While new orders to date are only 1% below the year ago figures, production is down 7%.

The upturn in orders brought some price increase at the mills. Last week there was a slight rise in the price of sheathing plywood at all major mills in the industry.

Business Briefs

• **Advertising planned**—The American Road Builder, organization publication of the American Road Builders Association, has announced that it will begin accepting advertising with the May issue. Announcement of the new policy has been sent to members of the association's Materials and Services Division.

• **Aluminum plant financing**—Reynolds Metal Co. is offering 914,078 shares of common stock, at $42 a share, to finance part of the cost of a $150 million primary aluminum plant near Massent, N. Y. The company plans to obtain an additional $100 million from sale of first mortgage bonds to institutional investors, and $15 million from banks.

• **TVA area expands**—Industry built 160 new plants last year in the area served by the Tennessee Valley Authority, according to a TVA compilation. In addition, 149 plant expansion projects were reported. TVA estimated the cost of the new and expanded facilities are more than $300 million.

• **Record budget**—Sun Oil Co. has budgeted a record $130.4 million for plant modernization and exploration this year. Last year, the total was $114.7 million.

• **Bigger home for Univac**—The Remington Rand Division of Sperry Rand Corp. has purchased an 88 acre tract in Whitpain Township, Montgomery County, Pa., as the site for a multi-million-dollar expansion of its Univac electronics operations.

• **Cement plant cancelled**—Marquette Cement Manufacturing Co. has abandoned plans to build a new cement plant near Clarksville, Texas. C. E. Werpel, vice president, said new studies disclosed "an unattractive sales picture, with inadequate demand for finished products in what would be the primary market," and lime deposits "inferior for manufacture of portland cement."

• **Portable schools**—Philadelphia is using portable classrooms to help relieve overcrowding in its public schools. The Board of Education let the first contract to provide 18 of the portable classrooms at a total cost of $218,000. The prefabricated units will be built adjacent to main buildings. Heat, electricity and water will be extended from the main lines.

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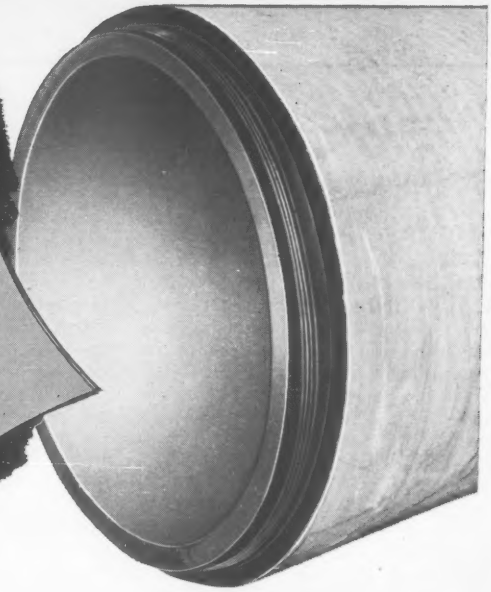

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Teamster Hedge on Beck Position

Emphasis placed on legislation as AFL-CIO, riding out of the storm, schedules teamster hearing for May 6

A series of rapid developments on the labor front last week indicated that AFL-CIO President George Meany was speaking with his usual foresight when he told union members in the building trades nearly a month ago that the AFL-CIO would come out of the current Senate investigation of labor activities "in better shape than ever before."

Strongest indication came from the teamsters union itself when its Executive Board decided on April 1 to champion the rights of members rather than those of its president, Dave Beck.

Under the leadership of the union's secretary-treasurer, John F. English, the board turned down a proposal of Mr. Beck's for spending $750,000 on an effort to tell the public Mr. Beck's side of the story recently unfolded before the Senate Select Committee on Improper Activities in the Labor-Management field. Instead, the board unanimously approved a public relations program to assist the teamsters' 1.4 million members and their officers in their fight against any unfair, restrictive anti-labor legislation on a local, state or national level" and to strengthen "the collective bargaining position of every local union."

The teamsters' action came fast on the heels of the AFL-CIO's suspension of Mr. Beck as a federation official and the launching of an investigation of the teamsters union by the ALF-CIO Ethical Practices Committee (ENR April 4, p. 150).

On May 20, the AFL-CIO will open its hearing on the charge that Mr. Beck's refusal on constitutional grounds to answer questions posed by the Select Committee has brought the labor movement into disrepute. And last week it was announced that the teamsters union will be accorded a hearing, if requested, on May 6 before the Ethical Practices Committee on the corruption charges that could lead to the teamsters' expulsion from the AFL-CIO.

• **No immediate change**—But the week's development offered little indication of any immediate change in teamster administration, despite scattered rumblings from the rank-and-file.

For, concurrently with the loss of headline interest in Mr. Beck's appearance before the Select Committee, there has come a growing awareness of the American principle that one must be presumed innocent until proven guilty by a court of law. Best example of this last week was the reappointment of teamster Vice President James Hoffa to the Board of Supervisors of Michigan's Wayne County, which includes Detroit. Mr. Hoffa last week plead "not guilty" to charges of bribery and his trial was set for May 27.

At the same time, the Building and Construction Trades Department of the AFL-CIO disclosed that it has no plans to replace Mr. Beck as a member of the department's Executive Council, and President Richard Gray has indicated he will not take the initiative in changing the status quo.

Even more significant, however, is the growing belief that the "wait and see" attitude may postpone a definitive showdown between Mr. Beck and his union or the AFL-CIO until or beyond the Sept. 30 general convention of the teamsters union. Some of the reasons are these:

• Early last week Mr. Beck announced his firm intention to remain head of the union and to seek re-election. The teamsters union simultaneously disavowed any intention of withdrawing from the AFL-CIO.

• There is strong feeling in the teamsters union that the constitutional rights of union members should not be abridged in the enforcement of labor's ethical practices codes.

• Mr. Beck's hitherto most likely successors—Frank Brewster and Mr. Hoffa—are still effectively immobilized by legal difficulties of their own, although existing receiverships over various locals may be significant (see page 151). Effectively immobilized by legal difficulties of their, whether officials such as Mr. English or Vice President William A. Lee could gain enough ascendancy to outrun Mr. Beck, however, still remained an unanswered question. Mr. English is now acting as a balance wheel to Mr. Beck and, in line with AFL-CIO policy, continued last week to cooperate "fully" with the Select Committee to Sen. John McClellan's professed satisfaction.

• Rank-and-file reaction unfavorable to Mr. Beck—in Portland, Ore., Yakima, Wash., Cincinnati and New York—has been isolated and inconclusive.

• Should the AFL-CIO find the teamsters "substantially dominated" by corrupt influences but give the union a chance to clean its own house before facing a decision on suspension, it's unlikely that a cut-off date earlier than that of the convention would be set.

• **Legislation**—Along with these developments came a number of outside indications that the AFL-CIO will safely ride out the storm.

On the legislative front—which the AFL-CIO fears the most—a bill to ban organization picketing was withdrawn from the New York legislature by its sponsor last week after failure to muster enough support for its passage. And in Idaho, Colorado and Wyoming right-to-work proposals were defeated.

On the federal level, labor Secretary James Mitchell reaffirmed his opposition to an antitrust approach to any legislation recommended as a result of the Senate investigations. And the House Education and Labor Committee gave the AFL-CIO another chance to acquaint the public with its rigid proposals for protecting union funds by announcing its plans to hold hearings on union welfare funds.

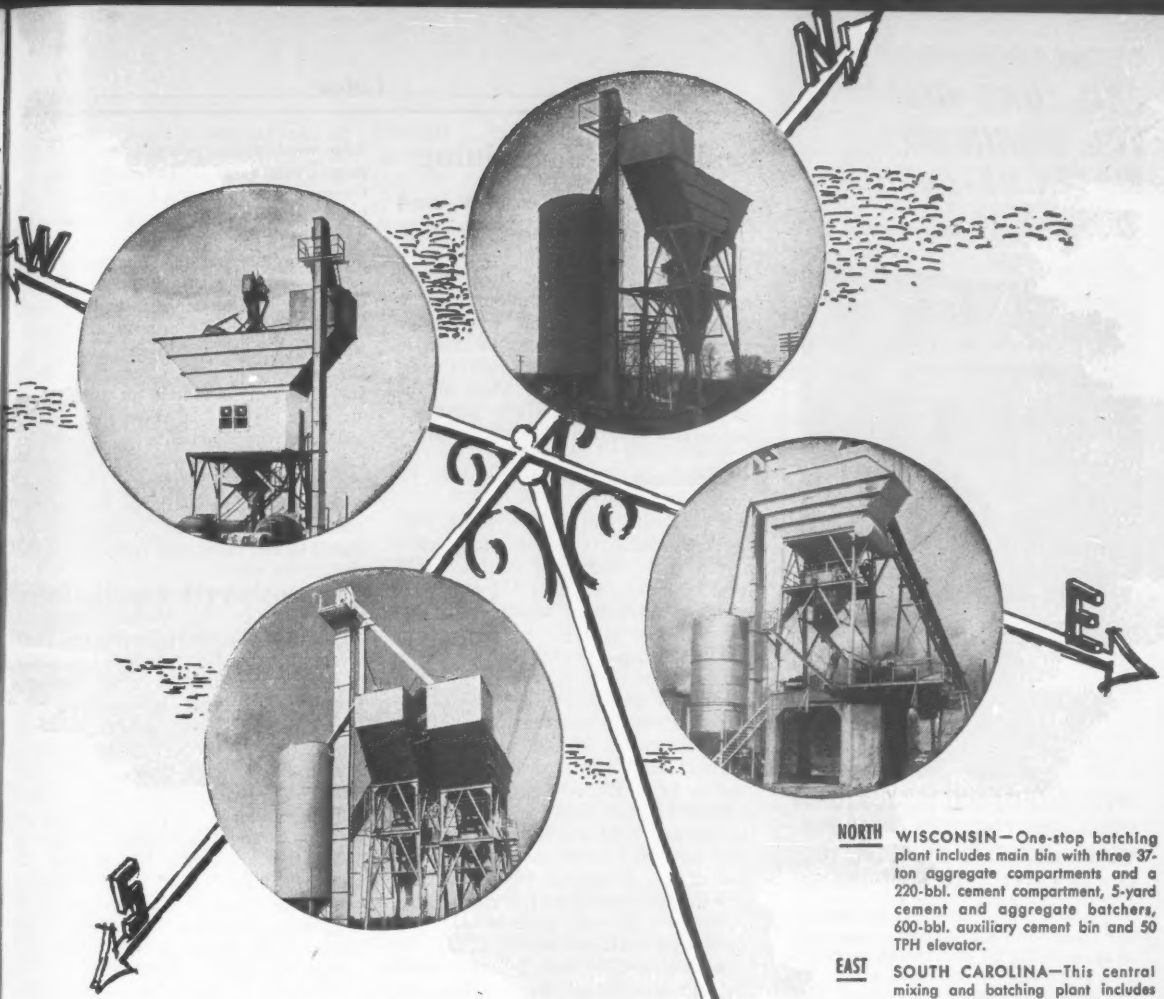
• **Self-discipline**—At the same time, union officials continued their efforts to promote democracy and cleanliness within labor's ranks, in the hope that self-discipline will stave off further governmental interference or compulsion.

United Auto Workers' President Walter Reuther, who has launched his own campaign against what he calls the "political immorality" of Sen. Joseph McCarthy (a member of the Select Committee), said the UAW Executive Board will this week recommend changes in union trial procedure and formation of a nonunion public review board to serve as a watchdog over UAW affairs and to hear appeals from aggrieved union members.

And the head of the New York State CIO last week urged that the AFL-CIO constitutional and ethical practices procedures be changed to embrace a "supreme court" of outstanding citizens and labor leaders to pass on charges of corruption among union members.

• **Investigations**—Meanwhile, the Select Committee took the spotlight off Mr. Beck and the AFL-CIO's resulting problems by announcing that its probe would soon be extended to Scranton, Philadelphia, Los Angeles and New York, and would cover management as well as labor.

(*Continued on page 150*)



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WEST **COLORADO**—Ready mix plant includes main bin with three 37-ton aggregate compartments and 320-bbl. cement compartment, 3-yard batching equipment and 50 TPH cement elevator.

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Collective Bargaining

Moderate increases and few strikes now prevail

Collective bargaining negotiations with the AFL-CIO building trades moved forward last week with settlements ranging from 10 to 15 cents in one year contracts from 25 to 47½ cents in three year contracts. Most of the settlements were peacefully achieved, but strikes occurred in scattered areas.

• **Settlements**—Among settlements reported were these:

• In Tampa and St. Petersburg, Fla., the Associated General Contractors agreed to a three year contract with local laborers, granting a 42½ cent wage increase. Present minimum of $1.25 will move to $1.67½.

• In Connecticut, New Haven painters won a 35 cent wage boost in a two year contract, with 20 cents payable now and 15 cents next year. Hartford carpenters signed a three year contract with Hartford Builders Association for a 47½ cent increase in 27½, 10 and 10 cent installments; provision is also made for a prospective pension plan and for a seven hour day without loss of pay, if adopted by other trades.

• Carpenters in East Liverpool, Ohio, obtained a 15 cent wage increase and bricklayers a 10 cent boost.

• In Evansville, Ky., laborers won a 25 cent hourly increase in a three year contract with Associated Building Contractors. Installments: 10, 8, 7 cents.

• Three trades in Kansas City—teamsters, operating engineers and laborers—signed three year contracts with Heavy Constructors Association for a 32½ cent wage boost payable in installments of 12½, 10 and 10 cents.

• **Strikes**—On the negative side, isolated strikes were called or threatened.

Commencing April 1, work on most union shop construction projects was halted in Baltimore for the first time in 10 years by a stoppage called a "lockout" by union spokesmen and a "strike" by management representatives, following expiration of union contracts with 11 trades. Among the 9,000 construction workers in seven trades that failed to show up for work were bricklayers, plumbers, sheet metal workers, cement masons and steamfitters. Carpenters are not participating but have given a 30-60 day strike notice. Union spokesmen report that the stumbling block is the size of the wage increase, and have stated their demands range from 15 to 25 cents an hour—management reports them as 35 to 55 cents. The meditation procedures of Baltimore's new Joint Conference Board, set up under the Standard Agreement, have been tried without success—and the board can't exercise binding arbitration powers unless both sides consent.

In Connecticut, a state-wide strike was called by local 40 of the Sheet Metal Workers' International Association, after rejecting a Sheet Metal Contractors Association offer of a three year contract providing for an immediate wage boost of 20 cents plus 3 cents more in fringe benefits, a 15 cent increase next year, and a wage reopening clause for the third year. The union, which said there would be no negotiations with individual contractors, objected to the three year term and to the size of the offer.

Meanwhile negotiations have broken down between the Alaska Chapter of Associated General Contractors and seven construction unions—operating engineers, teamsters, iron workers, bricklayers, cement masons and plasterers, laborers and lathers. Unions are seeking a two year contract with a 7% and 6% wage increase each year. The AGC has offered 4½%. Other stumbling block is the question of travel allowances—management wants to limit the allowance by making the starting point either the "dispatch point" or "nearest city or community with living facilities," whichever is the lesser. Carpenters previously accepted a 4½% increase.

Association Lockout

Joint action sustained by the U. S. Supreme Court

The right of a multi-employer bargaining association to engage in a temporary lockout of its employees as a defense against a union strike directed at one of the association members was affirmed by the U. S. Supreme Court last week.

In a unanimous opinon written by Justice William J. Brennan, the court ruled that preservation of the integrity of a multi-employer unit is a justification for use of the lockout under the Taft-Hartley Act. In doing so, the court sustained the arguments of the National Labor Relations Board and the employers.

The decision supports the view, prevalent in many quarters, that the construction industry's proposal that the law be amended to accord employer associations the status of an "employer" would merely restate existing law even though there is now no explicit provision providing for multi-employer bar-

gaining units. Such a proposal—one of three—recently was submitted to Congress by Labor Secretary Mitchell with President Eisenhower's approval (ENR Mar. 28, p. 117).

The Supreme Court's decision reverses a lower court ruling that the lockout is legitimate only in cases of economic hardship. The NLRB had upheld the action of seven linen supply firms in laying off their own truck drivers when the eighth member of the association was struck by a teamster local during contract negotiations with the association. The action, according to Justice Brennan, was lawful self-help to protect the bargaining unit from "disintegration threatened by the union's strike action".

Regulations Proposed

Labor's self-discipline is urged by state group

An upper limit on salaries of national union officers has been proposed by the Oregon Labor Press," official publication of AFL-CIO unions in Oregon.

"This may be called wild-eyed idealism," an editorial in the publication states, "but we feel that leadership in a trade union should more resemble a religious vocation than a business career."

"We don't expect union leaders to take vows of poverty," said the Oregon group, "but we do think a salary of $50,000 is too high for a man who represents workers whose yearly earnings may average less than $5,000."

The Labor Press also suggested "safeguards," it said, "all honest and democratic unions would be glad to adopt," and it proposed that these be established either by the ALF-CIO as a condition of membership or "by federal law if necessary." The proposals are these:

- Full reporting and disclosure of receipts and disbursements of health, welfare and pension funds.
- Regular auditing of all union funds by independent accountants or by rank-and-file members, or by both.
- A time limit of perhaps six months on the period in which an international union can hold one of its local unions in receivership or trusteeship, plus a strict accounting of all funds during the trusteeship. (Frank Brewster, head of the Western Conference of Teamsters, has estimated that 20% of the locals in his 11 state area are now in trusteeship. This affects the selection of delegates to union conventions and may afford a convenient means of influencing the outcome of convention elections.)
- A ban against union officers having any substantial interest in firms with which their unions have collective bargaining agreements.

Many of these suggestions have been incorporated in the AFL-CIO codes of ethical practices without the methods proposed by the Oregon group implementing their enforcement.

Carpenters Can Sue F. H. McGraw Company

Union carpenters who worked on the atomic energy installation near Paducah, Ky., in 1951 and 1952 have been told that the federal labor law does not prevent them from suing in a state court for unpaid travel allowances. The advice comes from the highest court in Kentucky and gives a green light to some 2,000 construction workers who hope to recover over $250,000 from F. H. McGraw Co., prime contractor on the nuclear project.

The suit originally was filed in a federal court but was dismissed for lack of jurisdiction. Another effort was made in a state court. The state action also was dismissed for lack of jurisdiction because the court felt that under the Taft-Hartley Act the claim should be tried by a federal rather than state court.

In directing the lower state court to find the legal run-around by taking jurisdiction, the Kentucky Court of Appeals said the state constitution guarantees "a citizen's fundamental privilege of access to the courts for redress of injury done him in his rights, and to employ the usual remedies for the enforcement thereof in actions of every kind." The intricacies of the law cannot defeat that guarantee.

The carpenters' claim, filed by representatives of Local 559, asserts that the McGraw company failed to pay travel allowances as required by a collective bargaining agreement between the company and the international union. It states that regulations of the Local for 1951 set travel pay at $1.00 a day for carpenters and millwrights working more than 10 miles from Paducah; in 1952, the allowance was increased by 12½ cents an hour and the distance reduced to five miles. According to the union, the amount of unpaid travel allowances exceeds $250,000.

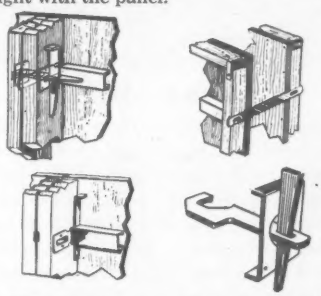
The court avoided the question of federal supremacy by noting that the rules of jurisdiction differ for federal labor law and common law problems, such as presented by the carpenters' claims.

"We wanted wall pours that we could complete **fast**, with forms we could re-use. That's...

...Why We Bought WACO Forms"

"All concrete forms are quite similar in construction and application," points out Harry Langlois, general superintendent for the Langlois Construction Company of La Grange, Illinois. "We found, however, that Waco forms had certain features we liked."

"For one thing," he explains, "Waco forms have fewer parts to get lost or misplaced. In fact," Langlois adds, "Waco forms have only these four basic elements in addition to the form itself, which comes in a variety of sizes to meet every forming need. First—there's a one-piece wedge-bolt, that serves as both a wedge and a bolt, for tieing the forms together. Then—a one-piece waler, for fast, easy waler attachment. Next—flat bar wall ties are self-aligning . . . the extended ends show at a glance the locations of the ties before pouring. And finally—spring retainers in the panel reinforcing sections hold a complete set of Waco wedge-bolts right with the panel."



"We like the way Waco forms stand up for an above-average number of pours, too," Langlois continues. "We've used our Waco forms now for the eighth time, and we're more sold on Waco than ever. I suggest that when *you* need forms to rent or buy, you get in touch with your nearby Waco form distributor."

WACO MANUFACTURING COMPANY
3565 Wooddale Avenue • Minneapolis 16, Minnesota

I am interested in your:

( ) Choice distributorships available
( ) Form catalog

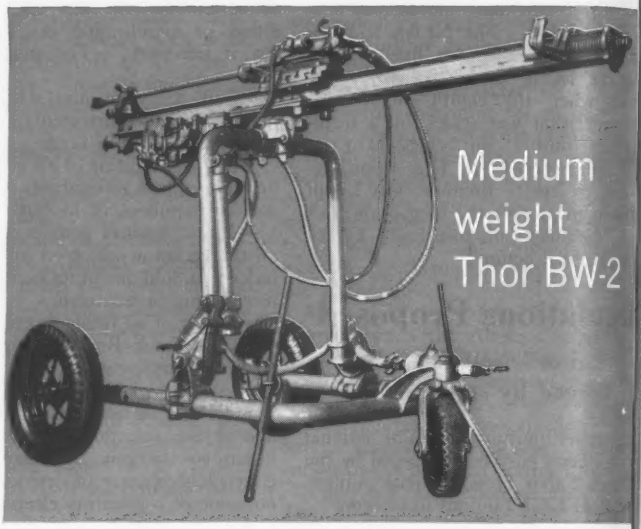
Name_____
Firm_____
Address_____
City_____ Zone____ State_____

Thor has rock drills for every job–every budget

THOR DRILLCAT

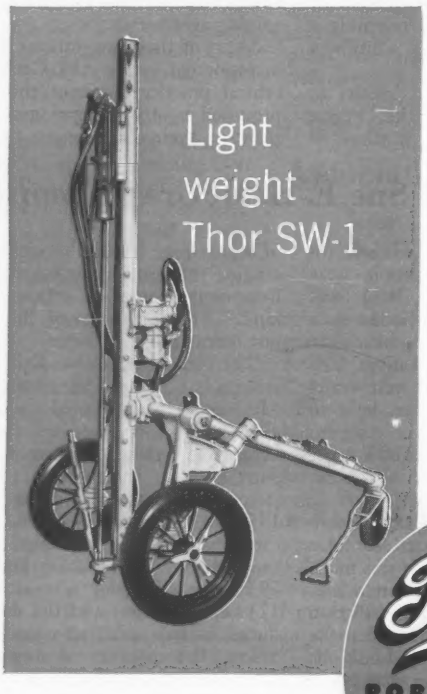
Thor's super-powered 105M drifter rock drill • Rugged Thor BW-2 wagon drill mast and air feed motor • Self-propelled with two 7½ h.p. Eimco air motors, power aplenty to haul itself and air supply • Rigid frame, proved in tractor design, long-lasting, low maintenance • Aircraft-type accumulator in hydraulic system maintains complete rigidity • Simple hand-operated track take-up • No track locks required • Large flat platform, good for tool and fuel storages—ideal for operator when drilling toe holes.

Ask your Thor contractor tool distributor to demonstrate Thor's SW-1 and BW-2 wagon drills and the fabulous new Thor MM-2 Drillcat. Thor Power Tool Co., Prudential Plaza, Chicago 1, Ill.



THOR BW-2

The medium weight BW-2 comes equipped with Thor 4" bore drifter. Has 800 to 1000 lbs. pulling power for steel removal, a 5 h.p. rotary air motor, variable speed control.



THOR SW-1

Thor's lightweight SW-1 delivers real economy in rock drilling. When equipped with a 55 lb. sinker, its lower air requirement permits the use of a smaller capacity compressor. Thor's SW-1 drills holes in any direction, at any angle—on level or sloping ground. 3-wheel reinforced compact rig—wet or dry operation—mast swings 360° vertical or horizontal—handles up to 3½" bore drifter.

Thor
PORTABLE POWER
TOOLS

THOR POWER TOOL COMPANY, CHICAGO

Atlanta • Birmingham • Boston • Buffalo • Chicago • Cincinnati • Cleveland • Denver • Detroit • Houston
Indianapolis • Kansas City, Mo. • Los Angeles • Milwaukee • Newark • Long Island City, N.Y. • Philadelphia
Pittsburgh • Richmond • St. Louis • San Francisco • Seattle • Toronto, Canada • Export Division, New York City

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.10 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, P.O. Box 12, New York 36, N. Y.

Bids: April 25, 1957.

Power Authority of the State of New York

BARNHART-PLATTSBURGH TRANSMISSION PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF 26 MVA THREE-WINDING TRANSFORMER
SPECIFICATION NO. PA-6-27
CONTRACT NO. TP6

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the design, manufacture and furnishing of one (1) 26 mva three-winding transformer and associated equipment and delivery thereof, f.o.b. cars at destination until 10:30 A.M. Eastern Standard Time on the 25th day of April, 1957, at the Authority's office, 270 Broadway, Room 1305, New York, New York, at which time and place proposals will be publicly opened and read aloud.

Bids will be received for the transformer and associated equipment and services in accordance with the bidding schedule. Installation of the transformer and associated equipment will be done by Others, but services of erecting engineers shall be provided by the manufacturer when and if required. Delivery of the transformer and associated equipment will be required June 1, 1958.

Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts and may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and repayment of a fee of Ten ($10.00) Dollars for initial set of Contract Documents and Five ($5.00) Dollars for each additional set, no part of which will be refunded. Two sets must be returned with each bid.

Bids will not be restricted to American manufacturers.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 10% percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
General Manager

Bids: May 1, 1957

Power Authority of the State of New York Advertisement For Proposals For Construction of Richards Landing Dike

SPECIFICATIONS NO. PA-5-11026
ST. LAWRENCE CONTRACT NO. 34

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the completion of the construction of Richards Landing Dike, near Massena, St. Lawrence County, New York, until 10:30 A.M., Eastern Daylight Saving Time on the 1st day of May, 1957, 270 Broadway, Room 1305, New York, New York, at which time and place proposals will be publicly opened and read aloud.

The principal items of work are estimated to be:

513,650 cu. yds. of excavation and embankment
39,600 cu. yds. of dumped quarried riprap
13,000 cu. yds. of crushed rock or gravel blanket under riprap
6,380 cu. yds. of crushed rock or gravel base
23 acres of topsoiling
27 acres of seeding

The excavation and rough grading of Massena Town Beach Area shall be completed on or before August 1, 1957. All work shall be completed on or before December 1, 1957.

Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Ten dollars ($10.00) per initial set and Five dollars ($5.00) per set for additional sets, no part of which will be refunded.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 10 percent of the gross sum bid.

The right is reserved to reject any or all bids.

PA-5-11026

W. S. Chapin
General Manager

Bids: May 6, 1957

New Dam on Fish Creek

CITY OF ROME, NEW YORK
ADVERTISEMENT

Sealed bids will be received by the Purchasing Agent of the City of Rome, City Hall, Rome, New York until 3:30 p.m. Local Time on May 6th, 1957 for the construction of a concrete masonry dam and accessories, said dam to be located on the east branch of Fish Creek approximately 17 miles northwest of the City. The bids will be publicly opened and read at 4:00 p.m. Local Time on May 6, 1957.

All proposals shall be made on forms furnished and shall be enclosed in a sealed envelope marked "New Dam on Fish Creek" and directed to the attention of the Purchasing Agent. Each bid shall be accompanied by a certified check or bidders bond in the amount of five per cent (5%) of the bid payable to the order of the Purchasing Agent of the City of Rome. The successful bidder will be required to furnish a performance bond in an amount equal to the contract award.

Plans, specifications, proposal forms and other contract documents may be examined at the office of the City Engineer, Rome, New York or at the office of Malcolm Pirnie Engineers, 25 West 43rd Street, New York 36, N. Y., and may be secured from said offices at a cost of Twenty-Five Dollars ($25.00) which will be refunded upon return of documents in good condition within ten (10) days after receipt of bids.

The City reserves the right to reject any or all proposals, or to accept any bid deemed to be for its best interest.

By order of Gregory F. Esposito,
Commissioner of Finance
CITY OF ROME, NEW YORK

Bids: April 23, 1957

West Delaware Tunnel Contracts 454 and 455

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, April 23, 1957, for the following two contracts for the construction of the easterly portion of the West Delaware Tunnel of the Delaware system, comprising about 19 miles of concrete lined pressure tunnel, circular in section and 11 feet 4 inches in finished diameter, and Shafts 5 to 7 inclusive, 14 feet in diameter, which will be circular in section and lined with concrete, all as set forth in the specifications:

CONTRACT 454, for the construction of about 60,000 linear feet of tunnel, including Shaft 5, approximately 760 feet deep, and Shaft 6, approximately 780 feet deep, located in the Towns of Rockland and Neversink, Sullivan county, New York.

CONTRACT 455, for the construction of about 42,000 linear feet of tunnel, including Shaft 7, approximately 650 feet deep, and the tunnel outlet, located in the Town of Neversink, Sullivan county, New York.

A bidder on both of these contracts may, if he so desires, specify in the bid form of either or both contracts, that he will agree to make a percentage reduction from the total cost of the contract, if both contracts are awarded to him.

Pamphlets of the two contracts containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in the Secretary's office, Room 1312 at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners; Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: April 23, 1957

Contract LT-160.062

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL
THIRD TUBE
PARKING LOTS 1, 2 & 3

Sealed proposals for the construction of three parking lots between Dyer and Ninth Avenues and 37th and 39th Streets in New York City will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, April 23, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman
New York, April 11, 1957

OFFICIAL PROPOSALS

Bids: April 25, 1957

Crompond School
Yorktown Heights, N. Y.

NOTICE TO BIDDERS FOR ALL CONTRACTS

Sealed proposals for the construction of the Crompond School, Yorktown Heights, New York, will be received by the Board of Education, Central School District No. 2, Towns of Yorktown, New Castle and Cortlandt, Westchester County, New York, at the Yorktown Heights High School Auditorium until 8:00 o'clock P.M., E.S.T. on April 25, 1957, at which time and place the proposals will be publicly opened and read.

Separate proposals will be received for the following work:

Contract No. 1—General Construction
Contract No. 2—Plumbing
Contract No. 3—Heating & Ventilating
Contract No. 4—Electrical
Contract No. 5—Site Development

Forms of Proposal, Drawings, Specifications and other Contract Documents may be obtained on or after March 29, 1957, by each bidder on Contracts No. 1, 2, 3, 4 and 5 at the office of the Architects, Ferrenz & Taylor, 152 West 42nd Street, New York 36, New York. One complete set of General Construction, Plumbing, Heating & Ventilating, Electrical and Site Development, will be furnished to each bidder upon receipt of a deposit check made payable to the Architects for the amount of Fifty Dollars ($50.00).

Deposits will be refunded upon return of the documents in good condition within 30 days after opening of bids provided that a proposal has been submitted. Deposit shall be forfeited in case of failure to submit a proposal. Additional sets or portions thereof may be obtained by any bidder upon payment of the actual cost of reproduction.

Proposals shall be made and received upon the following conditions:

Each bid must be accompanied by cash or a certified check, made payable to the Board of Education, or a bid bond. The amount of such bid security shall be five (5%) percent of the amount of the bid, as a guarantee that in case the contract is awarded to the bidder, he will within ten days thereafter execute the contract and furnish a satisfactory payment and performance bond. Upon failure to do so the Board of Education will retain for its own account the bid security or will default the bid bond as liquidated damages. Bid bonds in the form incorporated in the contract documents or other standard forms will be acceptable.

The cash or checks of all except the three lowest bidders will be returned within three days after the opening of the bids, and the remaining cash or checks will be returned when the contract is executed, or in any event within forty five days after the opening of the bids. No bid may be withdrawn within forty five days after the opening thereof.

The successful bidders will be required to furnish a payment and performance bond in the form incorporated herein, and with a surety or sureties satisfactory to the Board, which bonds shall be in the amount of the contract.

The time for completion shall be stated by the bidder in his proposal.

The Board of Education reserves the right to reject any or all bids and to waive any irregularities, or to accept any proposal by any bidder which in the opinion of the Board of Education will be in the best interest of the board.

March 28, 1957
Board of Education
Central School District No. 2
Towns of Yorktown, New Castle
and Cortlandt, Westchester County,
New York.
By Bertha Smith, Clerk

Read the Official

Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

OFFICIAL PROPOSALS

Bids: May 7, 1957

Contract EXD-130.028

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUILDING
THIRD AND SIXTH FLOOR
ALTERATIONS

Sealed proposals for alterations to the Third and Sixth Floors of the Port Authority Building at 111 Eighth Avenue, New York 11, N. Y. will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, May 7, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, April 11, 1957

Bids: April 24, 1957.

Advertisement
Notice to Contractors
Onondaga County Water Authority
Onondaga County, New York
Fairmount Pipeline

Sealed bids for the construction of a pipeline in the Town of Camillus, Onondaga County, New York, will be received by the Onondaga County Water Authority at the Onondaga County Court House, Room 407, Syracuse, New York until 10:00 A. M. Eastern Standard Time, April 24, 1957 and there at said office publicly opened and read aloud.

The project consists of approximately 6500 lineal feet of large diameter pipe and appurtenances. Alternate bids are to be taken on 24" and 30" diameter Prestressed Concrete, Cast Iron and Steel Pipe. Alternate bids are also to be taken for "Furnishing Materials Only" Alternate 1A, "Installing Materials Only" Alternate 1B and "Furnishing and Installing Complete" Alternate 2.

Information for Bidders and all Contract Documents may be examined at no expense at the office of O'Brien & Gere, Consulting Engineers, 400 East Genesee Street, Syracuse 2, New York. Copies of the Contract Documents may be obtained by payment of $10.00 for each set. Any bidder, upon returning such set in good condition within thirty (30) days of receiving bids, will be refunded his payment, and any non-bidder upon so returning such set will be refunded $5.00.

Also, copies of the above described Contract Documents and Specifications will be exhibited in the office of the Onondaga County Water Authority, 1240 Wolf Street, Syracuse, New York.

Each bid must be accompanied by security in an amount not less than five percentum (5%) of the amount of the bid in the form and subject to the conditions provided in the Information for Bidders.

The right is reserved to waive any informalities in the bids and to reject any and all bids and to award the Contract in whole or in parts.

ONONDAGA COUNTY WATER AUTHORITY
By: Thomas H. Dyer, Chairman

Dated: March 29, 1957.

U. S. Government

COMMONWEALTH OF MASSACHUSETTS Department of Public Works. NOTICE TO CONTRACTORS: Sealed proposals for Constructing Section 5 of the S.E. Expressway in BRAINTREE and QUINCY F. A. Project No. U355(1) will be received at Room 427, 100 Nashua Street, Boston, Mass., until 2:00 P.M. of TUESDAY, APRIL 23, 1957, and at that place and time publicly opened and read. Proposal guaranty: $190,000. Charge for plans and proposal forms: $50., amount returnable only to bidders. Complete information at said office. Minimum wage and dump-truck rates have been established. Right reserved to waive any informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to undertake and complete the work.
By: CARL A. SHERIDAN, Commissioner of Public Works.
March 30, 1957.

DEPARTMENT OF THE INTERIOR Bureau of Reclamation. Sealed bids (Specifications No. DC-4887) will be received at Kanab, Utah, until April 30, 1957, for furnishing labor and materials for Surfacing and Guard Rail for Access Highway, Glen Canyon Dam, Colorado River Storage Project, Arizona-Utah. Location in the Navajo Indian Reservation in Coconino County, Arizona. Principal items are 165,000 tons crushed rock base; 109,000 tons plant-mix bituminous surfacing; 5,400 tons asphalt cement; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, P. O. Box 267, Kanab, Utah; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR Bureau of Reclamation. Sealed bids (Specifications No. DC-4888) will be received at Ephrata, Washington, until June 4, 1957, for furnishing labor and materials for Earthwork and Structures for WB5 Wasteway No. 1, Wahluke Branch Canal Laterals, Block 20, Columbia Basin Project, Washington. Location near Mesa, Washington. Principal items are 334,000 cu. yds. excavation; 1,530 cu. yds. concrete; 288 lin. ft. concrete pipe; various miscellaneous items; and other work. Completion time 450 days. For particulars, address Bureau of Reclamation, P. O. Box 1, Eltopia, Washington; P. O. Box 368, Ephrata, Washington; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR Bureau of Reclamation. Sealed bids (Invitation No. DS-4889) will be received at Denver, Colorado, until May 7, 1957, for furnishing the following motor-driven, horizontal, centrifugal-type pumping units: three units, each with a capacity of 400 gpm at 80-foot head; and three multi-stage units, each with capacity of 400 gpm at 1,300-foot head, for water supply system at Page, Arizona, Colorado River Storage Project, Arizona-Utah. Delivery is desired within 180 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

CONTRACTORS
WATCH
THIS SECTION

for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

Bids: April 25, 1957.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Canal Law Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 25th day of April 1957, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 2, LACY KETCHUM, District Engineer, 109 No. Genesee St., Utica, N. Y.						
Fulton (Rte. 29)	FARC 57-33	Johnstown-Broadalbin, Pt. 2, S.H. 543 Broadalbin-East Galway, S.H. 8045 Project F-340(4)	2.80 (0.79 Acc.)	9" Cem. Conc. Pavt. 24' Wide=2.80 Mi.; Asp. Conc. Opt.=0.58 Mi.; Found. Course Rob Gravel=0.21 Mi.; Hy. Sep. Comp. I-Beam 133.5'	$37,000 Plans $15	$677,000
Oneida (Rte. 233)	FARC 57-34	Kirkland-Rome, S.H. 8246; Rome Roads—Augusta & Westmoreland Sections, S.H. 564. Project F-U-415(10)	4.82	Asphalt Concrete, Ty. 1A	$37,000 Plans $25	678,000
DISTRICT No. 3, W. ROBINSON, District Engineer, Weigh Lock Building, 301 E. Water St., Syracuse, N. Y.						
Cayuga, Cortland, Onondaga, Oswego, Seneca, Tompkins, Wayne	RC 57-32	Twenty Various State Highways in District No. 3	36.25	Subsealing Cement Concrete Pavement	$13,000 Plans $10	236,000
Onondaga (Rte. 5)	FARC 57-9	Fayetteville Village: Genesee Street, S.H. 5660 Project F-329(7)	0.25 (0.11 Int.)	9" Cem. Conc. Pavt. 50' Wide=0.12 Mi.; Asp. Conc. Ty. 1A=0.24 Mi., Comp. I-Beam Br. 260.5'	$26,000 Plans $10	486,000
Oswego	FISH 57-9	Interstate Route 5 (Brewerton-Central Square) (Oneida Lake Bridge). Project I-1118(9)	0.17	Cem. Conc. Pavt.=0.09 Mi.; Asp. Conc.=0.08 Mi.; Superstructure Only for Steel Arch Br. 448'	$108,000 Plans $25	2,004,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester 1, N. Y.						
Genesee (Rte. 33)	FARC 57-22	Crittendon-Corfu, S.H. 8215; Corfu-Batavia, S.H. 8283 Project F-377(12)	13.26	Asp. Conc. Opt. Repair Exist. I-Beam 30'; Repair Exist I-Beam 38'	$65,000 Plans $15	1,186,000
Livingston (Rte. 15 & 20A)	FARC 57-46	Livonia-Lakeville, S.H. 716; Lakeville-East Avon, S.H. 8034. Project F-315(2), F-61(3)	0.34	Asp. Conc.=0.22 Mi.; Misc. Work=0.12 Mi.; Prestressed Conc. Bridge 53'; R.C. Closed Box Bridge 21'	$15,000 Plans $15	268,000
DISTRICT No. 5, E. G. H. YOUNGMANN, District Engineer, State Office Bldg., 65 Court St., Buffalo 2, N. Y.						
Erie (Rte. 324)	FARC 57-35	Sheridan Drive, S.H. 9216 Project U-1123(1)	3.91	Asp. Conc. Ty. 2A=3.85 Mi.; Misc. Work=0.06 Mi.	$82,000 Plans $25	1,486,000
Erie (Rte. 263)	RC 57-37	Skinnersville-New Home Bridge, S.H. 584 Buffalo-Millersport, Pt. 2, S.H. 1949	1.99	Asp. Conc.	$10,000 Plans $10	180,000
Erie (Rte. 5)	RC 57-38	Eighteen Mile Creek, S.H. 5054; Athol Springs-Walden Cliffs, S.H. 5407; Eighteen Mile Creek-Evans Center, S.H. 5546	8.37	Asp. Conc.	$47,000 Plans $10	858,000
Niagara (Rte. 93)	FARC 57-36	Youngstown-Lockport, Pt. 1, S.H. 800 Project S-491(1)	4.79	Asp. Conc.	$18,000 Plans $10	340,000
DISTRICT No. 6, J. H. THOMAS, District Engineer, State Office Bldg., 30 W. Main St., Hornell, N. Y.						
Steuben (Rte. 333)	RC 57-43	Campbell-Thurston, Pt. 2, S.H. 903	0.05	Painting & Repairing Existing 232' Truss Bridge	$2,000 Plans $10	38,000
Yates	FATC 57-1	Penn Yan Village, S.H. 5291; Village of Penn Yan, Lake Street, S.H. 9325; Penn Yan-Potter, Pt. 1, S.H. 1596 Project U-146(3)	1.20	Installation of Traffic Signal System	$1,100 Plans $10	20,000
DISTRICT No. 7; R. W. SWEET, District Engineer, 444 Van Duzee St., Watertown, N. Y.						
Franklin	M-57-5	Saranac River Lower Dam and Lock	....	Install New Flood Gate and Misc. Work	$1,700 Plans $10	31,600
Lewis	M-57-6	Naumburg Canal Bridge Over Beaver River	....	Cleaning and Painting 124.6' Truss Bridge	$180 Plans $10	3,200
DISTRICT No. 8, K. G. RAUER, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Rensselaer & Columbia	BT 57-1	New York State Thruway—Berkshire Section—Sub. B-3A (Columbia Co. Line to Co. Rd. 27); Taconic State Parkway Interchange; 11 Secondary Cross or Access Rds. & S.H. 827 & S.H. 1933	7.96 (4.76 Acc.)	9" Cem. Conc. Pavt. 2@25' Var. Wide=9.58 Mi.; Asp. Conc. Opt.=0.25 Mi.; Bit. Mac. Ty. 1=2.81 Mi.; Misc. Work=0.04 Mi.; Cal. Chl. Treat. Gravel=0.04 Mi.; 9 Hy. Seps. Comp. I-Beams 197.7', 182', 256.3', 254.3', 153.5', 173.8', 178.4', 386.3' & 440.5'; 4 Brs. Comp. I-Beams 242.5', 242.5', 87' & 87'; 1 Hy. Sep. I-Beam 240.5'; 1 Hy. Sep. Deck Girder 484.5'; 1 RR Sep. Pl. Girder 298'	$770,000 Plans $100	14,000,000
Dutchess	FASS 57-5	Barnegat Road-Spackenkill Road, C.R. 76 Project S-138(2)	2.09	Asp. Conc. Opt. Hy. Sep. Comp. I-Beam 217.5'	$39,000 Plans $15	714,000
Rockland	PIP 57-1	Palisades Interstate Parkway Sec. 2 & Sec. 2 Pt. 1 (N. J. State Line to Rte. 303 and Rte. 59 to Rte. 45)	8.25	Roadside Development	$10,000 Plans $25	182,000
Westchester (Rte. 117)	FERC 57-40	Mount Kisco Village, S.H. 865 Project ER-49(1)	0.11	9" Cem. Conc. Pavt. 24' Wide=0.08 Mi.; Misc. Work=0.03 Mi.; P.C. Closed Box Bridge 24.2'	$5,500 Plans $10	98,000
Westchester	FINETC 57-2	New York State Thruway—New England Sect.—Sub. NE4 (Rye Station Area) Project IN-1068(12) (Cont. 2)	0.89	Modifications to Railroad Facilities & Re-Routing of Communication Lines	$8,000 Plans $25	153,000
Westchester (Rte. 127)	FARC 57-17	Lake Street, Ridge Street and Harrison Avenue, S.H. 1457; White Plains Town Line-Harrison, S.H. 780 Project S-468(1)	0.96	9" Cem. Conc. Pavt. 40' Var. Wide=0.95 Mi. Misc. Work=0.01 Mi.	$29,000 Plans $10	539,000
DISTRICT No. 9, J. C. FREDERICK, District Engineer, 71 Frederick St., Binghamton 21F, N. Y.						
Sullivan (Rte. 17)	FARC 57-42	Bloomingburg-Monticello Pt. 2, S.H. 5457 & 5457A; Monticello Village, S.H. 5490 & Monticello-Liberty Pt. 1, S.H. 5035. Project F-495(11)	5.40 (10.72 Acc.)	9" Cem. Conc. Pavt. 2@25' Var. Wide=12.72 Mi.; Asp. Conc. Opt.=2.27 Mi.; Bit. Mac. Ty. 1=1.10 Mi.; Misc. Work=0.03 Mi.; 6 Hy. Seps. Comp. I-Beams 213.5', 281.8', 212.8', 252.5', 280' and 206.2'; 1 Reinf. Conc. Slab Bridge 23.5'	$430,000 Plans $100	7,811,000
DISTRICT No. 10, M. E. GOUL, District Engineer, 325 W. Main St., Babylon, Long Island, N. Y.						
Bronx	FICBE 57-1	Cross-Bronx Expressway (Cont. 1E) (University Ave. to Anthony Ave.) Project I-1084(26)	0.98	Demolition of Buildings	$14,000 Plans $10	250,000
Bronx	FIBE 57-1	Bruckner Expressway Sect. 1 (Cont. 4A & 4B) (E. 133d Street to Hunts Point Avenue) Project I-1086(4)	1.90	Demolition of Buildings	$7,000 Plans $10	136,000
Kings	FIBQE 57-1	Brooklyn-Queens Expressway Cont. 18 (Concord St. to Flushing Ave.) Project U-I-1066(20)	1.17 (0.73 Acc.)	Asp. Conc. Ty. 2B=0.91 Mi.; Asp. Conc. Opt.=0.99 Mi. Steel Beam & Girder Viaduct 4804'	$820,000 Plans $100	16,085,000
Nassau & Suffolk (Rte. 109 & 110)	FARC 57-41	Farmingdale-Maywood, S.H. 9077; Maywood-Babylon & Pt. 2, S.H. 1841-8499; Huntington-Amityville Pt. 2, S.H. 1219 Project U-985(9)	4.53 (1.19 Acc.)	9" Cem. Conc. Pavt. 2@34' Var. Wide=2.12 Mi.; Asp. Conc. Opt.=1.59 Mi.; Misc. Work=2.01 Mi.	$96,000 Plans $25	1,749,000
Nassau & Suffolk (Rte. 25)	RC 57-44	Jericho Turnpike-Plainview Road, S.H. 436; Jericho Turnpike Pts. 2 & 3, S.H. 5111-5112; Smithtown Branch-Coram, S.H. 8268 & Greenport-Orient Point 2, S.H. 8380	1.31	Drainage & Misc. Work	$28,000 Plans $10	510,000
Suffolk (Rte. 24 & 25)	RC 57-45	Jericho Turnpike, S.H. 5008; Jericho Turnpike Pt. 3, S.H. 5112; Smithtown Branch-Coram, S.H. 8268; Farmingdale-Riverhead Pt. 1, S.H. 9065	2.08	Drainage & Misc. Work	$26,000 Plans $10	470,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds.

Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

EMPLOYMENT OPPORTUNITIES

NATIONAL COVERAGE

The Advertisements in this section include all employment opportunities—executive, management, technical selling, office, skilled, manual, etc.

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Box Numbers—counts as 1 line.
Discount of 10% if full payment is made in advance for 4 consecutive insertions.
Not subject to Agency Commission.

Send NEW ADS or inquiries to Classified Adv Div of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36, N. Y. April 25th Issue Closes April 15th

Executive Profit Maker Wanted

Age 40—55

We are a nationally known Company about to undertake a large expansion in the general construction field. We need a thoroughly experienced construction executive to take complete responsibility for this expansion. Eventually this position leads to one as an officer of the Company.

You will have to show proof of your past and present ability to sell, bid, negotiate, buy and perform on bids to industry. Our present activity varies from $75,000 to multi-million dollar bids.

Salary range will be equal to the talents required. Administrative ability and actual profit performance will be the basis for present and future income.

We presently operate throughout the United States and occasionally in foreign countries. Only persons who have had like experience should apply.

In accepting this position it will be necessary for you to bring along two or three qualified assistants to handle individual projects under your supervision.

We also have a comparable position open in our Estimating Department.

Write or wire for an appointment to discuss these jobs and your qualifications. Our people know of this ad. All inquiries will be held in strictest confidence.

P-4575, Engineering News-Record, Class. Adv. Div., P.O. Box 12, N.Y. 36, N. Y.

HIGHWAY ENGINEER

Highway Engineer with 8 to 12 years experience in design and administration. Must be able to assume heavy responsibility. Excellent opportunity with established consulting engineering firm in Middle West. Must be registered.

P-4635, Engineering News-Record, 520 N. Michigan Ave., Chicago 11, Ill.

SUPERINTENDENT BUILDING CONSTRUCTION

Top flight man by growing company operating nationally. Give all pertinent data in reply including education, experience, salary, references and when available.

BLOUNT BROTHERS CONSTRUCTION CO.
P. O. Box 949 Montgomery, Ala.

ENGINEERS

Civil Engineers with or without experience in hydraulics, soils, concrete design, contracts estimating, dams or construction for work on flood control projects in Pennsylvania. Salary to $9000. State experience, salary requirements and references.

P-4228—Engineering News-Record
Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

3 SOIL AND FOUNDATION ENGINEERS

Engineers with advanced degree required. Prefer men with considerable practical experience in highway soils and foundation practices. Would also be interested in person for summer work now teaching these subjects at graduate level. Positions are top level professional opportunities with appropriate earnings. Location midwest. Send resume to:

TESTING SERVICE CORP.
Box 284 Villa Park, Illinois

REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.
NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Soils Engineer—prefer man with MS in soils about 1945 or 1946—to head up a design group in a firm of consulting engineers specializing in design of dams. Must be top-notch design engineer and supervisor. Salary open. Location Midwest. P-3942, Engineering News-Record.

Soils, Asphalt & Concrete Inspectors . . . Field & Lab Tech; also Party Chief & Instrument Man. O'seas. Mild Climate. Write Mr. Levy, Patchen & Zimmerman, 120 Greenwich St., NYC 6. REctor 2-4187.

Engineers with experience in municipal and industrial waste collection and treatment, or projects of related type. Midwest consulting firm with long established practice limited to sanitary engineering projects. Please send full details of education and experience, references and approximate salary requirements. P-4461, Engineering News-Record.

Designers—Electrical and Piping . . . . . Power Plants and Industrial Buildings. Marbarry Corp., 120 Greenwich St., New York City 6, N. Y. REctor 2-3749.

Highway and Bridge Engineers, Designers. Experienced, for Permanent Positions in our New York Office. Excellent Salary Plus Overtime. Air mail resume to Farkas & Barron, Consulting Engineers, 5 Beekman Street, New York 38, N. Y., or call BEekman 3-8387.

Wanted: Paving and dirt Superintendent for long established New York contractor operating in New York and adjacent states. Salary commensurate with experience and—ability. P-4670, Engineering News-Record.

Structural Design Engineers and Graduate Civil Engineers—to design and detail buildings of all types. Excellent opportunities. Salary will depend on experience and ability. Replies will be treated confidentially. Ammann & Whitney, Milwaukee Office, 724 East Mason Street, Milwaukee, Wisconsin.

Superintendent for all phases Asphalt Highway Construction in Arkansas. Hot Asphalt Plant Operation experience necessary. Position permanent. Salary open. Reply: Personnel, P. O. Box 2660, Little Rock, Arkansas.

Gunite Estimator and a Gunite Superintendent —Middle Atlantic States. State age, experience, availability, salary desired. P-4640, Engineering News-Record.

Graduate Civil Engineer or equivalent experience to assist City Engineer, location North-Central Indiana, salary $5,200-$6,500. Please give experience and full details in reply. P-4680, Engineering News-Record.

Position open for Junior College Instructor in Drafting and Engineering Drawing. Apply, Director, Coalinga College, California.

Construction Superintendent for Industrial and Commercial construction by well known Pennsylvania Engineering and Constructors Organization for work in central Pennsylvania. Give full details in letter of application. P-4771, Engineering News-Record.

Superintendent experienced in excavation, pumping, sheeting and shoring methods. Opportunity to grow with expanding organization. Must be willing to travel. Permanent position with good future. P-4768, Engineering News-Record.

POSITIONS VACANT

Sales Engineer for permanent position in growing phase of heavy constructi Familiar with excavation methods and equi ment. Civil engineering background desira but not necessary. Must be willing to tra in eastern United States. Excellent futu P-4767, Engineering News-Record.

Engineer—experienced. For medium si contracting firm engaged in heavy constru tion, principally highways, airports, bridg interested in intelligent, ambitious engine Duties would include engineering layout excavations, paving and structures; estim ing proposed jobs; and computing quanti of work done. Would touch on all operati of company and lead to executive position right man. Salary open. Reply by letter g ing resume of education, experience and r erences. East. P-4762, Engineering Ne Record, 520 North Michigan Avenue, Chica 11, Illinois.

Chief of Party—Must be capable of handli survey parties and have thorough understan ing of survey work pertaining to rights way, curb and street lines, sanitary and sto sewer surveys, and general survey wo Apply by appointment—Office of How Madison, Township Engineer, 1 Main Stre Woodbridge, N. J., between 9 A.M. and 5 P.

Structural Engineer for responsible charge important design work, with experience marine structures, steel fabrication practi Salary $800 up, depending on qualificatio P-4696, Engineering News-Record.

Assistant port engineer, growing Florida se port. Must be C.E. graduate or equivale and have four years experience in design a construction of port or municipal facilitie Salary range, $6,000-$7,200 plus benefi Send experience record and references to Po Engineer, Broward County Port Authori Port Everglades Station, Fort Lauderdal Florida.

Designer—draftsmen with several years e perience in the design of sewage treatme plants, pumping stations and related struc tures. Excellent opportunity with growi firm in City in Upstate New York. Salar commensurate with ability. Paid vacation holidays, hospitalization. Our employee know of this ad. P-4729, Engineering News Record.

Transit Man—For inside and outside wor Must have thorough knowledge of enginee ing, drafting and calculating, and be tho roughly familiar with deed and conveyanc and tax map work. Apply by appointment— Office of Howard Madison, Township Eng neer, 1 Main Street, Woodbridge, N. J., be tween 9 A.M. and 5 P.M.

Associate Professors, Assistant Professors, o Instructors, (rank and salary determined b training and experience) to teach in the De partment of Engineering Drawing, which ad ministers courses in Graphics, Engineering Mechanics, and Engineering Orientation. Year round opportunities for participation o research which replaces part of teaching loa during the academic year. Apply to Professo Carson P. Buck, Chairman, Department o Engineering Drawing, Syracuse University Syracuse 10, N. Y.

Superintendent or superintendent-engineer to take full charge estimating and supervisi asphalt and road construction. Locatio Cleveland, Ohio. Permanent job. Salar right. P-4795, Engineering News-Record.

Construction Superintendent, experienced i institutional work, New York City. State e perience and salary desired. P-4799, Engineering News-Record.

Structural engineer for building design Ketchum and Konkel, Consulting Engineers 1090 Fox Street, Denver 4, Colorado.

Associate professor for transportation and soils engineering in C.E. Dept. of large eastern metropolitan university. Probable starting salary in neighborhood of $7,500 for nine months depending upon qualifications. P-4805, Engineering News-Record.

WANTED . . . Heavy Construction Hea Superintendent to work for long established New England contracting firm operating in New York and New England. Salary commensurate with experience and ability. P-4807, Engineering News-Record.

Engineering Graduate with experience in the testing and control of concrete, asphalt and soils for work abroad. Give full details of experience and education. Salary range $8000 to $10,000 per year. P-4835, Engineering-News Record.

(Continued on page 160)

Budd

Explorers of the Unknown in Metals—Wants High Level ENGINEERS

To Blaze New Trails in the Development & Perfection of Metals Suited for Use in

- **AIRCRAFT STRUCTURES**
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Here in our Aircraft Research and Nuclear Propulsion Laboratories — an outgrowth of the research activity which produced such great industrial engineering FIRSTS as the all steel automobile body, stainless steel railway cars and the all steel two-engine planes — BUDD has just reached another milestone in its exploratory achievements: a solution to the practical and efficient manufacture of structures for aircraft and missiles subject to aerodynamic heating has been found!

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If you are interested in an association in a high level research environment, in one of our plants in the East, please fill in the Ready-Reference Card below and send to THE PLANT OF YOUR CHOICE, today, along with a complete resume of your educational and work background.

Mail Today!

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Personnel Manager
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Personnel Manager
RED LION PLANT
Bustleton, Pa.

Personnel Manager
CHARLEVOIX PLANT
Detroit 15, Michigan

Personnel Manager
CHASE PLANT
Gary, Indiana

NAME _____ Date _____
(Last) (First) (Middle)

PRESENT ADDRESS _____

BIRTH DATE _____ ARE YOU A CITIZEN OF U.S.? YES___ NO___ DATE AVAILABLE _____

List in order of preference positions for which you feel best qualified:

1 _____ 2 _____ 3 _____

EDUCATION	NAMES & LOCATIONS	DATES ATTENDED	COURSE	DEGREE	DATE
High School					
College					
Other					

NAME OF PRESENT OR MOST RECENT EMPLOYER _____

ADDRESS _____

POSITION HELD _____ CITY AND STATE _____

EARNINGS _____

(THIS INFORMATION WILL BE HELD IN STRICT AND COMPLETE CONFIDENCE)

Is Your Resume Attached?

POSITIONS AVAILABLE

FOR

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DESIGNERS DETAILERS

ON HIGHWAY, EXPRESSWAY AND DRAINAGE
ENGINEERING DESIGN IN OUR ST. LOUIS OFFICE

YOU WILL WORK WITH HIGHLY SKILLED
ENGINEERS IN A PLEASANT ENVIRONMENT

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STRUCTURAL and MECHANICAL DESIGNERS

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Permanent Position For Qualified Men

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Phone or Write
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Cleveland 4, Ohio
Telephone EN 1-0842

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Positions open for experienced Engineers with excellent opportunities for advancement:

CIVIL OR SANITARY ENGINEERS to design Sewage Treatment Plants and Sewage Works or to take charge of individual project.

STRUCTURAL DESIGNERS experienced in Concrete and Steel design of Sewage Treatment Plants, Water Treatment Plants, or Hydraulic Structures in connection with Dams.

SOILS ENGINEERS experienced in Slip Circle Analysis Method for design of Earth Dams or experienced in Highway Construction.

HYDRAULIC ENGINEERS experienced in design of Earth and Concrete Dams or Water Treatment Plants.

CIVIL OR SANITARY ENGINEERS as Principal Assistant in Design.

DRAFTSMEN experienced in Turnpikes, Bridges, Dams, Water Treatment and Sewage Treatment Plants.

SPECIFICATION WRITER experienced in Sewage Plant Specifications.

Ideal living conditions, vacations and sick leave, bonus, insurance and retirement benefits.

Send complete resume to —

GANNETT FLEMING CORDDRY & CARPENTER, INC.

P. O. Box 366 **Harrisburg, Penna.**

BRIDGE & HIGHWAY ENGINEERS DRAFTSMEN

BROOKHART & TYO

Consulting Engineers

3501 N. Front St. **Harrisburg, Pa.**

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Maintenance, Scheduling & Programming

Several graduate engineers with minimum 5 years' experience supervising maintenance engineering functions in oil refining or producing facilities, power plants, heavy industrial installations and supporting facilities. For work in Saudi Arabia as Staff Engineers.

High salary commensurate with background and experience; living allowance and all-inclusive benefits.

Submit resume including your telephone number to:

Recruiting Supervisor, Box 203

ARABIAN AMERICAN OIL COMPANY

505 PARK AVENUE
NEW YORK 22, NEW YORK

ARCHITECTURAL ENGINEER

Architectural Engineer between ages of 25 and 35 with interest in design of industrial buildings and structures.

Excellent opportunity with consulting engineering firm in Middle West. Liberal benefit plans and good working conditions.

Send resume of education and experience with statement of salary requirements to:

P-3222, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

GRADUATE CIVIL ENGINEERS or ARCHITECTURAL ENGINEERS

Major Southwestern general contractor needs engineers for work in estimating dept. Job requires investigation and take off and can also lead to field work depending on interest of employee. Excellent opportunity for young men to obtain desirable position with reliable firm doing all types of construction work. Have openings in El Paso, Dallas, and Los Angeles offices.

ROBERT E. McKEE

GENERAL CONTRACTOR, INC.

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Highway & Bridge Engineers
Designers & Draftsmen

Career opportunities for men interested in professional recognition.
Excellent working conditions and employee benefits including liberal retirement program.
Openings in Pennsylvania, Maryland, Florida, West Virginia, Mississippi and overseas.

Air Mail Resume TO R. L. SHAW, Personnel Director

MICHAEL BAKER, Jr., INC.

BAKER BLDG. ***Consulting Engineers*** **ROCHESTER, PA.**

WANTED IMMEDIATELY

First Class Structural Engineer wanted for large fabricating plant in the Southwest, fabricating steel for mill and tier buildings and all types of highway, turnpike and expressway projects.

Applicant should be about 35-40 years old with about 15 years experience in detail drafting office. Requirements of college graduate or registered engineer are not essential provided applicant has sufficient education and experience to qualify as a registered engineer.

Excellent opportunity for advancement—Ideal working conditions in air conditioned office—Company benefits—Insurance — Hospitalization — Vacation — Retirement — Paid Holidays and Sick Leave.

Enclose complete resume of personal history, education and experience.

P-4689, Engineering News-Record,
520 N. Michigan Ave., Chicago 11, Ill.

CIVIL ENGINEER

Young civil engineer interested in broad application of civil engineering.

Excellent opportunity with consulting firm. Liberal benefit plans and good working conditions. Location Middle West.

Send resume of education and experience with salary requirements to:

P-3223, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

ENGINEERS

Long established firm of consulting engineers with world-wide practice needs both beginners and experienced civil, electrical, mechanical, and foundation engineers for interesting work on large dams, powerplants, and river control works. Permanent positions. Liberal employee benefits. Starting salaries dependent on qualifications. Please send complete resume to Hugo Niemi, Personnel Manager.

HARZA ENGINEERING CO.
400 W. Madison St. Chicago 6, Ill.

CONSTRUCTION . . .
PROJECT MANAGER
PROJECT ENGINEER
For overseas project

Should have engineering degree plus extensive experience as project manager or project engineer on overseas installations.

Must be available on 30 days notice. Husband & wife quarters. Salary commensurate with background.

Send complete resume

P-4663—Eng. News-Record
Class Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

ENGINEERS and ARCHITECTS
You Have An Excellent Future Working For
CATERPILLAR TRACTOR CO.
THE WORLD'S LEADER

In the field of Crawler Tractors, Motor Graders, Diesel Engines, and Earthmoving Equipment.

Due to a vast expansion program opportunities exist for:

ARCHITECT: Minimum of five years experience. Staff position directing design, approval of drawings and specifications. Coordinating design of new plants or major plant additions.

STRUCTURAL ENGINEER: Three to five years experience in design of steel and reinforced concrete heavy industrial structures.

ASSISTANT SUPERVISING ENGINEER: Responsible for general supervision and coordination of contractors in the construction of new plant facilities.

FIELD ENGINEER: Responsible for concrete and soils work. Supervising proportioning, mixing, placing and finishing of concrete, performing soils and concrete tests for control.

ENGINEER OFFICE ASSISTANT: Construction responsibilities associated with distribution and evaluation of job costs, processing invoices, insurance coverage, guarantees, waivers of liens, and general clerical work.

Interested applicants are requested to send full particulars of experience and education to Mr. R. R. Haarlow, Professional Employment Co-ordinator.

EMPLOYMENT DIVISION
CATERPILLAR TRACTOR CO.
Peoria, Illinois

Editor Wanted
Challenging Job Open for
ENGINEER
with Writing Experience

A leading publisher of journals serving the roadbuilding, municipal and civil engineering fields has an immediate opening for a man who feels he could do editorial reporting on field methods. Some travel with camera.

Applicant must have a civil engineering education and practical experience, plus a demonstrated ability to write articles, technical convention papers or reports. A challenging lifetime opportunity for the right man.

Give experience outline, evidence of writing ability, and salary requirement in your reply.

Address
P-4724, Engineering News-Record
Classified Advertising Division
P. O. Box 12, New York 36, N. Y.

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Broad diversification of work in our three engineering divisions assures you *permanent* security of employment.

You can build a strong foundation for your future with McKee. For complete information on the McKee organization and the extra benefits this company offers you write for our folder "The Key to Your Future" or contact us by telephone.

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or write to Edward A. Kolner
Arthur G. McKee & Company
2300 Chester Ave., Cleveland 1, Ohio

Arthur G. McKee & Company
Engineering offices in
CLEVELAND, OHIO • UNION, N.J. • TORONTO, ONT.

POSITIONS VACANT
(Continued from page 156)

Engineers — Architects — Draftsmen, Experienced in design and supervision of construction on water works, sewers and general building construction. State experience, age, salary requirements and earliest date available. P-4813, Engineering News-Record.

Wanted—Experienced Sanitary Engineer to head a State Water Pollution Control Program. Salary open. Reply stating educational and experience background and salary expected. State Dept. of Health, Division of Personnel, 1000 State Capitol Building, Lincoln 9, Nebraska.

Civil Engineer with experience in prestress concrete design to locate permanently with fifty year old firm now in production of prestress members. If necessary will train. State experience, references and educational resume. The Dextone Company, P. O. Box 606, New Haven, Connecticut.

Estimator-engineer for est. G/C in North N. J., industrial and commercial bldgs. and govt. work. Write exp., salary. P-4845, Engineering News-Record.

Teaching position in civil engineering and/or mechanics starting next September. Salary and academic rank dependent on qualifications. Salary up to $7,500.00. Location New York State. P-4840, Engineering News-Record.

Assistant Professor to teach mechanics and/or civil engineering starting next September. Salary $6,500.00 Ph.D. desirable. Location New York State. P-4839, Engineering News-Record.

EMPLOYMENT SERVICE

Salaried personnel, $5,000-$30,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings. Dept. L. P. O. Box 674, Manchester, Vermont.

POSITIONS WANTED

Construction Executive sound experience all phases, bid to completion, buildings and heavy construction, available as project manager, chief estimator or similar position where scope and volume require top man. Now employed. Minimum $15,000. PW-4709, Engineering News-Record.

General Supt. P.C.C. 38 yrs. old. Supt. 15 yrs. Want interest in P.C. concrete highway paving Co. in exchange for supervisory services. Prefer west of Mississippi. Steadily employed. PW-4694, Engineering News-Record.

Bridges—Construction Methods & Estimates. Consulting Service, Fee Basis, 19 years experience, PW-4678, Engineering News-Record.

Rock Supt. or Drill Foreman, 25 yr. experience in heavy construction, available now, will travel, references. PW-4673, Engineering News-Record.

City Engineer and Director of Public Works— Young progressive engineer now in town 13,000 pop. desires similar position in larger city. Special interest in city contemplating extensive sewage treatment program. G. M. Jacobs, City Hall, Columbia, Tenn.

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Barber-Greene Co. 11
J. H. Baxter Co. 119
Bay City Shovels, Inc. 41
Berger & Sons, Inc., C. L. 55
Bethlehem Steel Co. 61
Blaw Knox, Const. Equip. Div. 149
Borden Metal Prod. 20
Broderick & Bascom Rope Co. .....4th Cover
Bruning Co., Inc., Charles 129

Case Foundation Co. 145
Caterpiller Tractor Co. 32
Celotex Corp., The 90
Cities Service Oil Co. 86
Clow & Sons, James B. 60
Clyde Iron Works, Inc. 111
Concrete Grinding Corp. 78
Concrete Surfacing Machinery Co. 106
Connors Steel Div. H. K. Porter Co. 81

Deming Co., The 42
Detroit Diesel Engine Div., Gen. Motors Corp. 84, 85
Eugene Dietzgen Co. 167
Dodge Div., Chrysler Corp. 109
Dodge Mfg. Corp. 127
Dorr Oliver, Inc. 108
Dravo Corp. 63, 97
Dur-O-Wal 145

Fairbanks-Morse & Co. 3
Fenestra Inc. 94, 95
Fennel Instrument Corp. of Amer. 72
Foster Co., L. B. 16

Gardner-Denver Co. 44, 45
Griffin Wellpoint Corp. 106
Gunite Concrete & Construction Co. 167
Gurley, W. & L. E. 104

Hamilton Kent Mfg. Co. 147
E. F. Hauserman Co. 70
Hendrix Mfg. Co., Inc. 107
Horn Co., Inc., Div. of Sun Chem. Corp. 58
Hose-McCann Telephone Co., Inc. 40
Hughes Bros. Inc. 132

Illinois State Toll Highway Comm. 128
International Harvester Co. 4, 5, 6, 7, 8, 9
Intrusion-Prepakt, Inc. 103
Irvington Form & Tank Corp. 118

Johns-Manville Corp. 120

Lead Industries 43
Leschen Wire Rope Div. H. K. Porter Co. ... 80
LeTourneau-Westinghouse Co. 64-69
Levinson Steel Co. 83
Lincoln Engineering Co. 143
Link Belt Speeder Corp. 73
Lock Joint Pipe Co. 18
Luber Finer, Inc. 102
Lufkin Rule Co. 126

Macomber, Inc. 96
Mahon Co., R. C. 139
Manitowoc Engineering Works 89
Manitowoc Shipbuilding, Inc. 100
Marietta Concrete Corp. 146
Marion Power Shovel Co. 75
Maxon Construction Co. 121
McCulloch Motors Corp. 176
McKiernan-Terry Corp. 167
Moretrench Corp. 37
Mueller Co. 144

National Steel Corp. Great Lakes Steel Co. 99

Oliver Corp. 140

Patent Scaffolding Co. 91
Pioneer Engineering Works 56, 57
Portland Cement Assn. 93
Posey Iron Works, Inc. 124

Quaker Rubber Div. H. K. Porter Co. 82

Revere Copper & Brass Inc. 39
Reynolds Metal Co., Inc. 116, 117

Servicised Prod. Co. 88
Shlagro Steel Prod. Corp. 98
Spanall of the Amer. Inc. 14, 15
Spencer, White & Prentis, Inc. 12
Superior Lidgerwood Mundy Corp. 125

E. A. Thompson Co., Inc. 74
Thor Power Tool Co. 152
Timber Engineering Co. 2
Townsend Co. 10
Truscon Laboratories 150
Tube Turns, Inc. 49, 50
Twin Disc Clutch Co. 79

Universal Form Clamp Co. 101

Waco Mfg. Co. 151
Water Seals, Inc. 38
Weil Pump Co. 92
Wheeling Corrugating Co. 13
Williams Equip. & Supply Co. 97
Wood Co., R. D. 130, 131
Wrought Washer Mfg. Co. 135

Professional Services 163-166

CLASSIFIED ADVERTISING
F. J. Eberle, Business Mgr.

Employment Opportunities 156-160
Proposals 153-155
Educational 160
Equipment
(For Rent, Sales Wanted). 160-162, 166
Wanted 166

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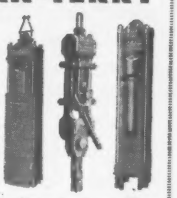

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End of Hells Canyon

THE SUPREME COURT'S REFUSAL to review the Hells Canyon case is salutary in upholding the Federal Power Commission's rights. Had it been otherwise every FPC license would have had to be battled through the courts. And far too much of this legal bickering occurred over Hells Canyon to contemplate its reoccurrence with any satisfaction.

As to power development in this Snake River gorge on the Idaho-Oregon border, this will now be accomplished with two or three private power company dams instead of a single, huge federal one. The latter would have provided more long-term carryover water storage, but the smaller dams will be generating power long before the bigger one could have. An effective partnership policy might have produced both of these advantages, but as it was, an all-or-nothing public-private power fight developed. It took a Supreme Court decision to end it. The next time a controversy arises over an FPC license a quicker solution should be possible.

Planning for Highways

THE ABILITY of engineers in our state highway departments and the Bureau of Public Roads to plan properly was questioned at the National Planning Conference of the American Society of Planning Officials, held recently in San Francisco. There, John T. Howard, associate professor of city planning at MIT, was quoted as saying that "just as war is too important to leave to the generals, so highways are too important to leave to the highway engineers." He added that because the 1956 highway act was "silent on planning" it places a "terrible responsibility" on highway engineers by forcing them "to make decisions that have impacts far outside their fields." As a consequence, Professor Howard fears that much of the multi-billion-dollar fund authorized by the act will be "spent for the wrong things in the wrong places."

Such viewing with alarm, however well it may have been received by the professional planners, does not accord with the facts nor do justice to the planning record of highway officials. The 1956 highway act is "silent on planning" because the planning for the Interstate System was done under an act passed some years ago. And planning for the other federal-aid highways is a continuing function of the state highway departments. Many years ago Congress began the practice of authorizing them to spend part of their federal-aid money on advance planning and this money has been conscientiously spent.

When it comes to making decisions that have impacts outside of their field, we think the record of what highway engineers have done in the past is one they can be proud of. Their studies of the effect of by-pass highways on the economic life of the by-passed communities is but one example. Actually, in most instances, they have worked closely with regional planning groups.

Professor Howard's prediction that much of the mone to be spent under the 1956 highway act will be spent fo "the wrong things in the wrong places" appears wholl unjustified. Here again, the record of what the highwa departments have already done in building super-high ways to serve densely populated metropolitan regions speaks for itself. In most instances, of course, the solu tions to the complicated problems presented by the high way needs of metropolitan regions are compromises be tween conflicting requirements. But in no instance, we believe, can it be shown that they depart so radically from the ideal solution as to be characterized as the wrong solution in the wrong location, which is the implication of Professor Howard's blanket indictment.

Housing Upturn Possible

HOMEBUILDERS have good cause for concern over the fal off in housing starts this year. For eight consecutive year through 1956, they had been able to build and sell more than one million units annually. But while prospects o maintaining this rate in 1957 are poor, chances for im provement from present levels are beginning to appear.

Spokesmen for the National Association of Home Builders place the principal blame for the downturn on a shortage of mortgage money created by the govern ment's anti-inflation moves. There is no denying that higher interest rates have worked against mortgages pegged to the lower rates set by Congress for veterans' loans, and NAHB's fight to get these raised may yet bear fruit.

But the brighter signs are discernable elsewhere. Thus demand for new capital is declining, decreasing the com petition for construction money. Meanwhile, the supply of lendable money is rising as personal savings continue to rise. Probably late this year, the gap between supply and demand will narrow to the point at which mortgage borrowers will be able to get money more easily. This unquestionably would set the stage for an upturn in housing.

In the meantime, it is worth noting that the current conditions in the housing market probably do not stem entirely from a shortage of mortgage money. Rising con struction costs and a scarcity of good sites may well have priced some new houses out of the market. It is also pos sible that the supply of new houses in the price range now offered by builders is close to the saturation point in many parts of the country.

Therefore, in preparation for the improvement in money supply, homebuilders may find it profitable to step up their activities aimed at rectifying other conditions that may interfere with an upturn in housing starts. Much more effort could well be spent toward lowering construc tion costs and improving the quality of design—particu larly in the $8,000 to $15,000 price range.

50

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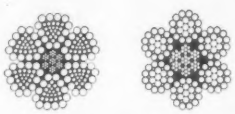

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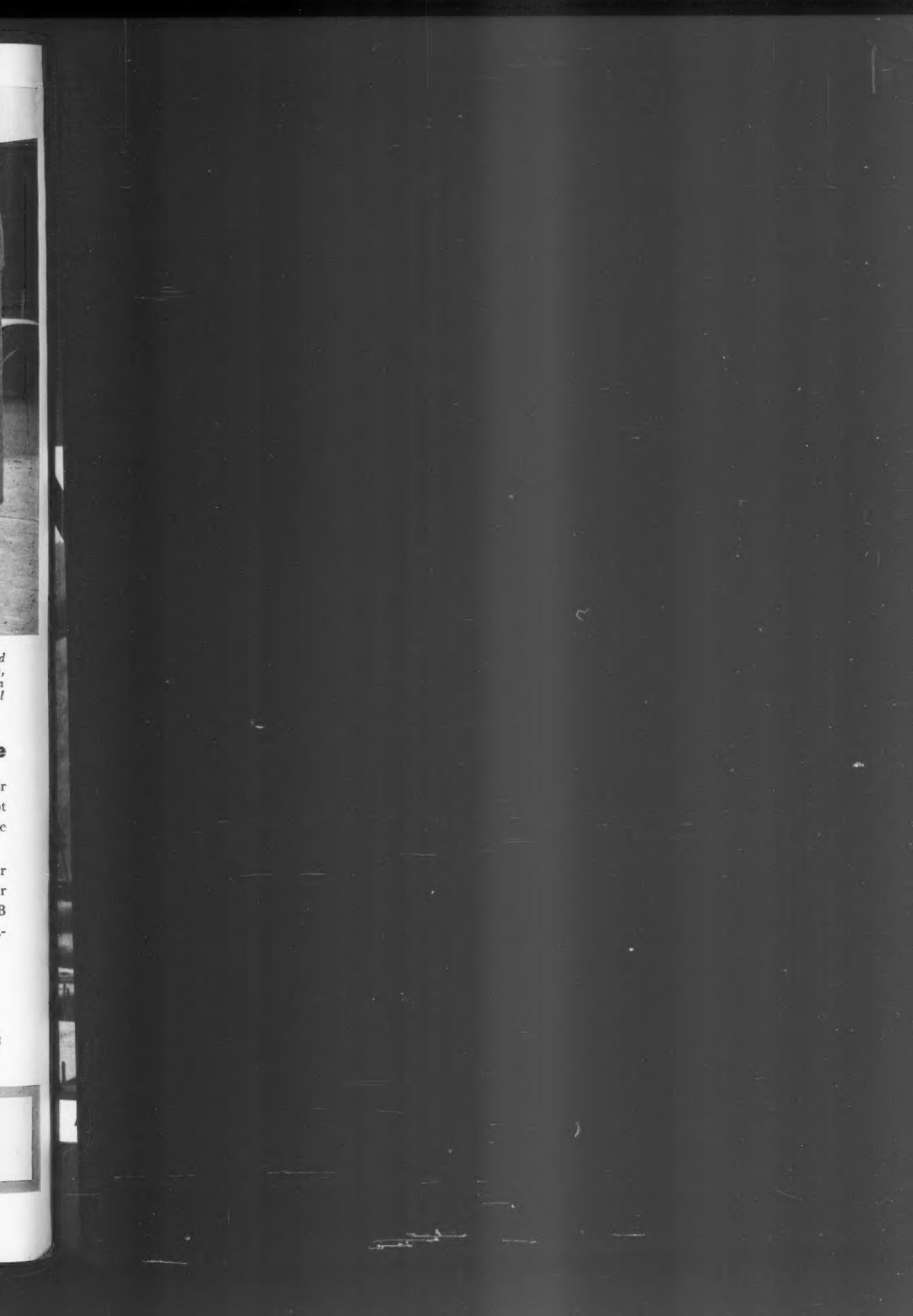
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